

# Canovision **E850** *Hi*

## 8mm VIDEO CAMCORDER

### Instruction Manual



INSTRUCTIONS



Thank you for purchasing the Canon 8mm Video Camcorder Canovision E850Hi.  
The E850Hi can record and play back standard 8mm or Hi8 video cassettes in full stereo.

- Use only video cassettes marked with the **Hi8** (E5/P5 type) or **8** (P5 type).
- With the E850Hi, stereo recording is possible. However, tapes recorded in stereo will play back on monaural 8mm VTRs in monaural.

**Please check that this package contains the following items:**

E850Hi	Lens Cap	DC-100 DC Coupler
	Sports Finder	BP-E77K Battery Pack
	Microphone	CA-100 Compact Power Adapter
	One Lithium Battery	RU-100 RF Unit
	WL-200 Wireless Controller	SS-300 Shoulder Strap
	Two R03 (MICRO) Batteries	ST-150 Stereo Cable
	Lens Hood	S-150 S-video Cable
		P5-30 HMP 8mm Video Cassette

#### **Optional Accessories**

WS-20 Wrist Strap	Filter Set 46
CB-110 Car Battery Adapter	Filter Set 46U
HC-850 System Case	VL-20 Battery Video Light
SC-800 Soft Carrying Case	BP-E722 Battery Pack
MM-200 Stereo Mixing Microphone	Wide Attachment 46
ZM-100 Stereo/Zoom Microphone	Multi-conversion Lens 46
RS-800 Rain Shield	C-150 AV Cable
MB-100 Microphone Boom	PC-170ST Stereo SCART Cable
TL-46 Tele-converter	PC-270SST S-Stereo SCART Cable
TL-55L3X Tele-converter	VE-100 Video Editor
WD-46 Wide Converter	RGB-100 RGB Converter

## **Important Usage Instructions**

### **CAUTION:**

**TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.**

### **WARNING:**

**TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE.**

### **CAUTION:**

**TO REDUCE THE RISK OF ELECTRIC SHOCK AND TO REDUCE ANNOYING INTERFERENCE, USE THE RECOMMENDED ACCESSORIES ONLY.**

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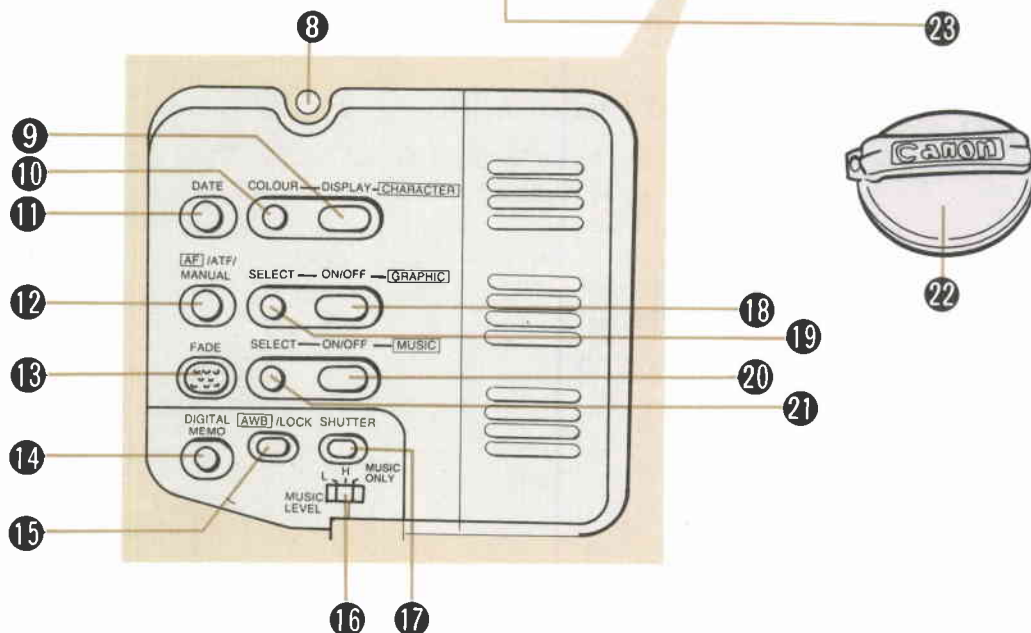
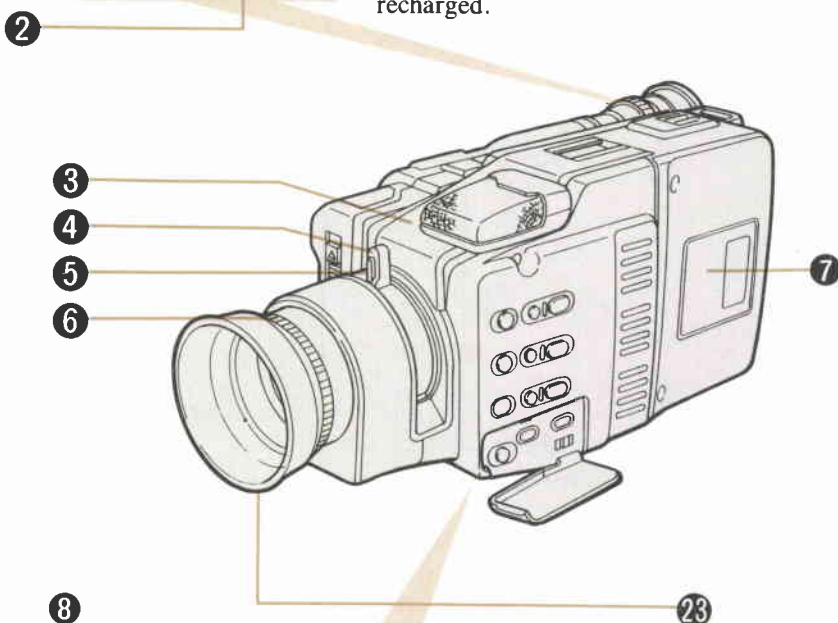
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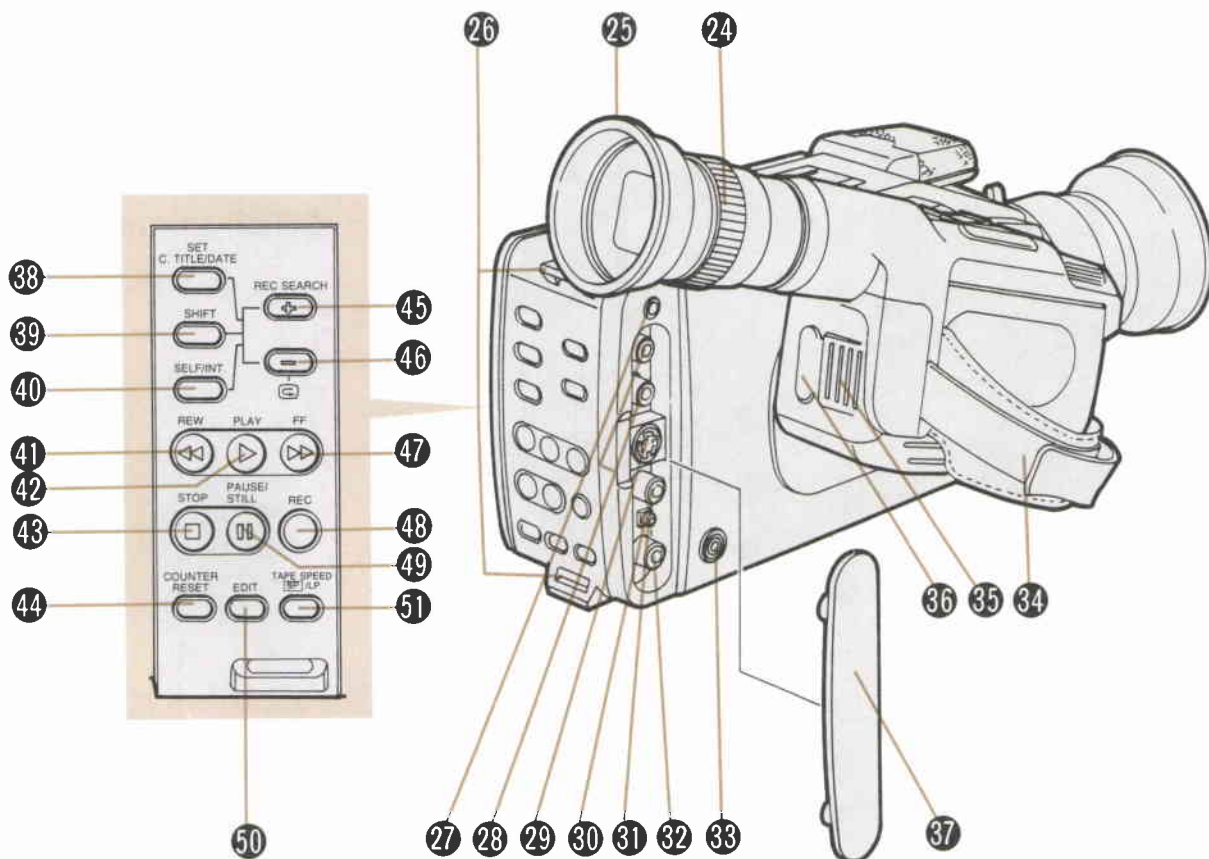
# Camera Parts and Functions

## 1 OPERATE/CAUTION Indicator

This indicator lights when the camera is turned on. It flashes to warn that there is internal condensation or to indicate that the battery pack needs to be recharged.



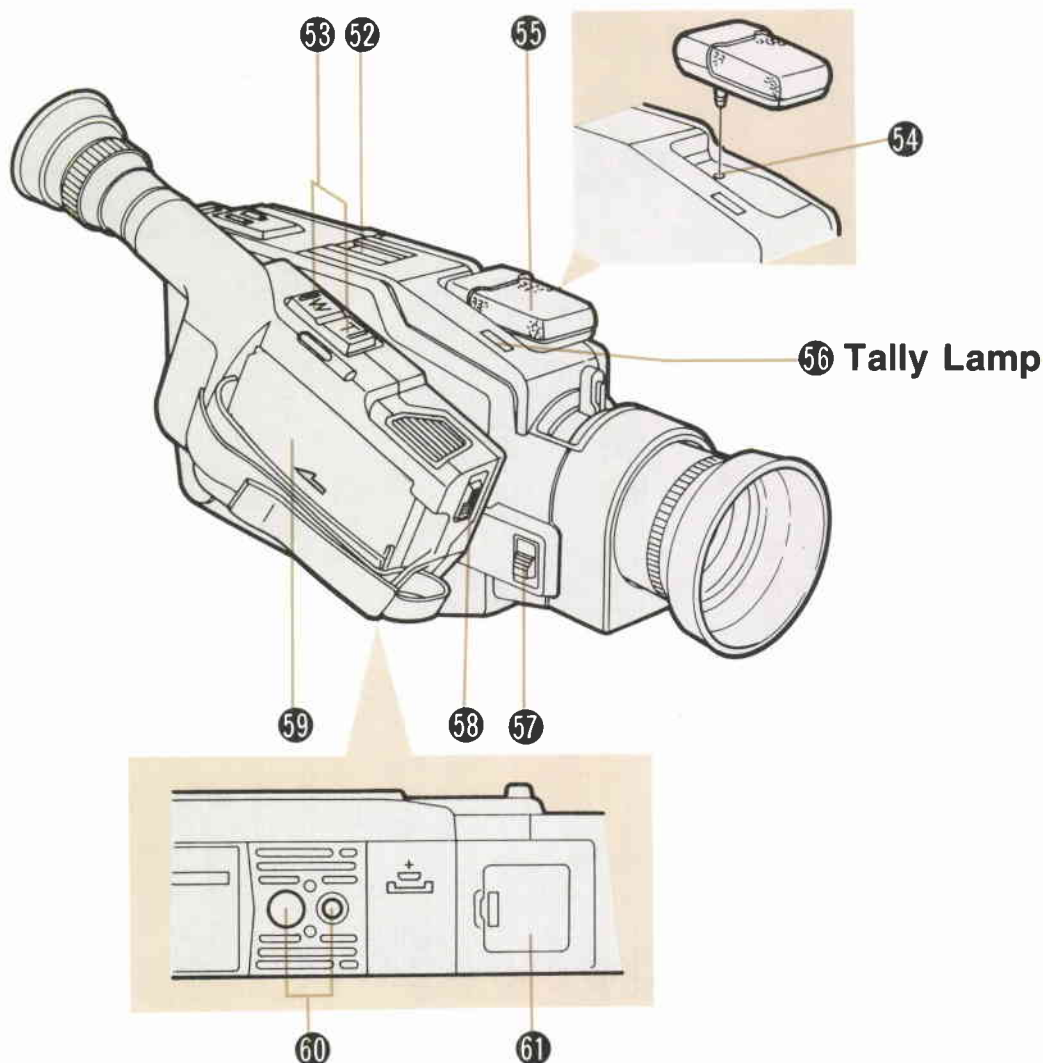
- 1 EJECT Button ( p.18)
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- 3 Remote Sensor ( p.7)
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- 24 Diopter Adjustment Ring ( p.15)
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- 33 HEADPHONES Terminal ( p.59)
- 34 Grip Belt ( p.14)
- 35 Thumb Rest  
Place your thumb here when you are recording or carrying the camera.
- 36 START/STOP Button ( p.18)
- 37 Audio/Video Compartment Cap
- 38 SET C.TITLE/DATE Button ( pp.16, 54)

- 39 SHIFT Button ( pp.16, 54)
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- 52 Accessory Shoe ( p.59)
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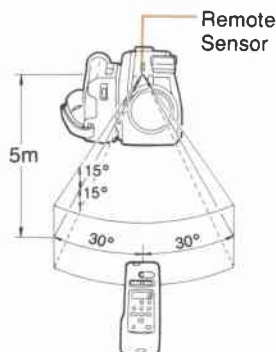
The tally lamp performs four important functions:

- Flashes rapidly during recording.
- Flashes slowly during self-timer standby and then starts flashing rapidly when recording starts.
- Flashes slowly when interval timer is set.
- Lights up when wireless controller is in use.

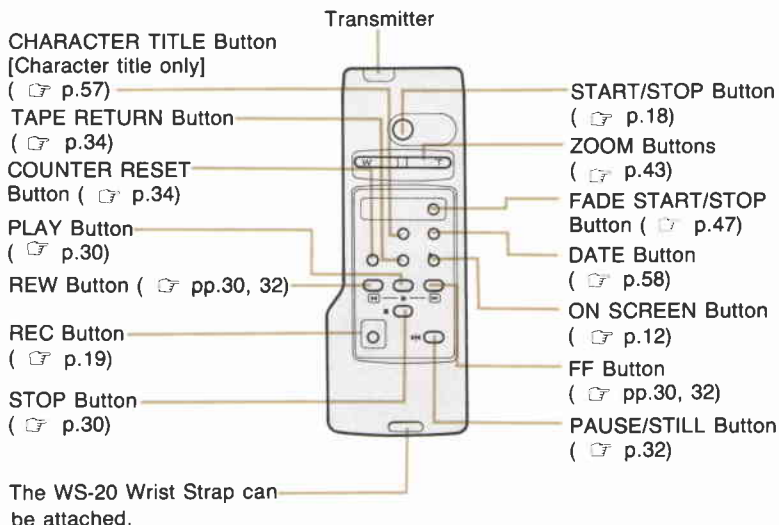


# Wireless Controller

Using wireless controller from a distance



Wireless controller buttons perform the same functions as the camera buttons.



## Operation

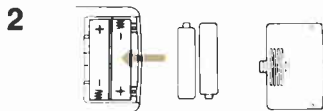
- Aim wireless controller at camera remote sensor and press control buttons to operate camera. The tally lamp lights up when remote sensor receives a signal.
- Operate wireless controller within 30° angle on either side and 15° angle above and below the camera remote sensor, up to a distance of five metres.
- If you are too close to camera when operating wireless controller, camera may not respond to wireless controller's signal.

## Inserting Batteries in Wireless Controller

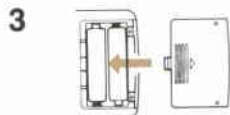
The wireless controller operates on two R03 (MICRO) batteries.



Remove cover from back by pressing down and sliding in direction of arrow.



Insert two R03 (MICRO) batteries following (+) and (-) markings inside unit. Be careful not to reverse polarity of batteries.



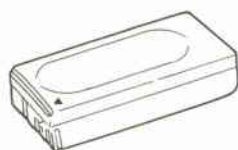
Replace cover following guide grooves.

### Notes:

- Do not leave wireless controller exposed to direct sunlight or in hot or humid places.
- Wireless controller uses infrared beams to transmit signals, so sunlight or fluorescent light on the remote sensor may shorten operating distance.
- Wireless controller will not function if RS-800 Rain Shield is attached to the camera.

# Power Sources

## Battery Pack



BP-E77K



BP-E722 (Option)

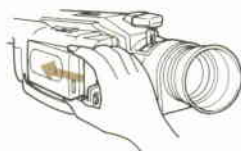
Make sure battery pack is fully charged before use.

Continuous recording time is approximately 40 minutes.

- Some camera modes consume more power than others, so actual recording time may be less than 40 minutes.
- The safest policy is to have enough batteries to cover two to three times the length of recording time scheduled.
- Using battery pack in low temperatures will shorten recording time.
- Battery pack normally becomes warm during use.
- Battery's (+) and (-) terminals may short circuit if they come in contact with any metal objects. Take care when handling battery pack, and keep it in plastic or other protective covering when carrying or storing.
- Power is slowly drained while the battery pack is attached to the camera, even when the camera is turned off. Remove the battery pack when you don't expect to use the camera.
- See battery pack instruction manual for further information regarding battery pack.
- Use the optional BP-E722 Battery Pack for lengthy recording (see p.64).

## Attaching Battery Pack

1



**Slide battery pack into power source compartment.**

- Insert the end marked with a triangle.
- Slightly loosen grip belt and press it down for easy battery loading.

2



**Press until it clicks and locks in place.**

## Removing Battery Pack

1

**BATT EJECT**



**Slide and hold BATT EJECT switch up.**

2



**Pull battery pack out as shown.**

- Be sure to turn camera off (OPERATE/CAUTION indicator goes off) before removing battery pack. Removal during camera operation may cause damage.

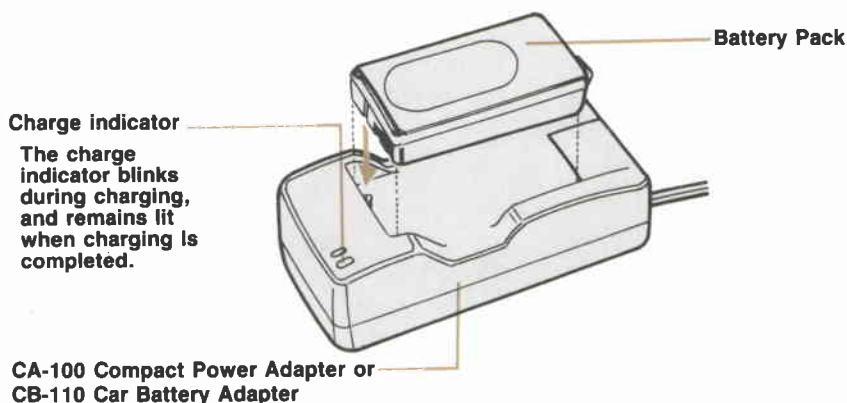
## Charging Battery Pack

Use the CA-100 Compact Power Adapter (or optional CB-110 Car Battery Adapter) to charge battery pack.

Connect battery pack to CA-100 (or CB-110) as shown.

Then plug into mains outlet (or car cigarette lighter socket.)

- Charging time is shown in the table below. (Charging time varies according to ambient temperature and remaining charge in battery.)
- When charging battery pack, charge indicator on compact power adapter blinks. When battery pack is charged, charge indicator lights.
- When charging a brand-new battery pack or one that has not been used for approx. three months, charge completely once (until charge indicator lights). Then disconnect and reconnect battery pack to CA-100 (or CB-110) and charge once more.
- When attaching the battery pack to the CA-100 (or CB-110), make sure that the battery pack guide and battery pack groove are properly aligned. When attaching or removing the battery pack, slide it in perpendicularly as shown.
- It is possible to charge battery pack when ambient temperature range is between 0°—40°C. For best results, charge battery pack when ambient temperature is between 10°—30°C. Use of battery pack under extremely high temperatures (above 40°C) may activate safety circuit, making operation impossible.
- Immediately after use, the battery pack will be hot and it is best not to recharge it at this time. Make sure that the battery pack has cooled off before recharging.
- When you don't expect to use the battery pack for a long time (three months or more), store in a discharged condition. Storing in a charged condition will shorten the life of the battery pack.



Battery Pack	Continuous recording time	Charging time
BP-E77K	approx. 40 minutes	approx. 70 minutes
BP-E722	approx. 85 minutes	approx. 130 minutes

### Battery Warning



When battery charge is nearly exhausted, "BATT" flashes in camera viewfinder and the OPERATE/CAUTION indicator also flashes. Replace or recharge battery pack (be sure to turn camera off before removing the battery pack).

- If the camera is turned on with an exhausted battery pack attached, it may turn off immediately, without a "BATT" warning.

## CA-100 Compact Power Adapter



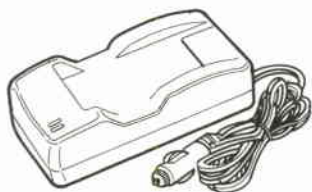
### Using AC Power

Plug into a mains outlet.

Input voltage: 100—240 V AC, 50/60 Hz.

- Use together with the DC-100 DC Coupler.
- Refer to CA-100 instruction manual for further details.

## CB-110 Car Battery Adapter (Option)



### Using Car Battery

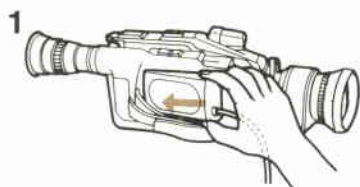
Plug into cigarette lighter socket.

For use only with 12 or 24 V DC negative-ground car battery.

- Use together with the DC-100 DC Coupler.
- When using car battery adapter, car engine must be running.
- Refer to CB-110 instruction manual for further details.

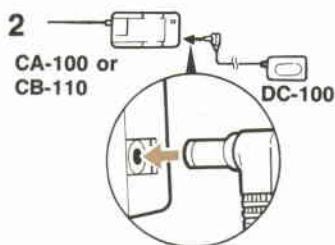
## Connection Procedure

To use the compact power adapter or car battery adapter:

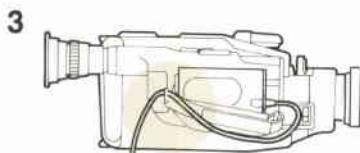


### Insert DC-100 DC Coupler into power source compartment.

- Insert and remove in the same way as the battery pack (see p.8).



### Connect DC-100 cable to compact power adapter (or car battery adapter).



### Attach DC-100 cable to grip belt as shown.

### Caution:

Using the compact power adapter near the TV may cause the TV to emit noise. If this occurs, move the compact power adapter further away from the TV or aerial cable.

## Inserting New Lithium Battery

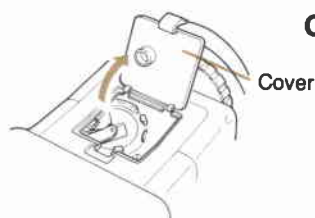


The CR2025 type lithium battery provides your camera with enough power to store titles, date and time settings, even when the camera is turned off.

One lithium battery will last approximately one year (lifespan of lithium battery varies slightly, according to ambient conditions). When lithium battery is not in place or is nearly exhausted, "DATE" flashes in viewfinder, indicating that the lithium battery needs to be replaced.

Be sure to connect a power source to the camera before changing the lithium battery, otherwise titles, date and time settings will be cleared from camera's memory and will have to be reset.

1



**Open lithium battery compartment cover.**

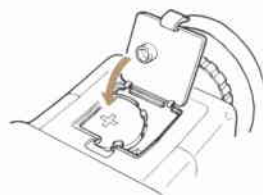
2



**Insert a new lithium battery with (+) side facing up.**

- Insert the lower section first, then push into place.
- Make sure the lithium battery is secured in place.

3



**Close lithium battery compartment cover.**

- Make sure cover fastens properly (snaps into place).

### Warning:

The battery used in this device may present a fire or chemical burn hazard if mistreated. Do not recharge, disassemble, heat above 100°C or incinerate. Replace battery with Panasonic CR2025 or Duracell DL2025B. Use of another battery may present a risk of fire or explosion. The used battery should be handed back to the supplier.

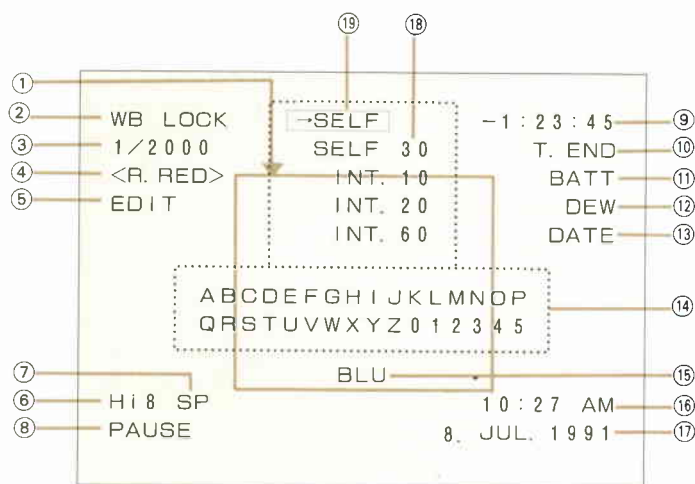
### Caution:

- Make sure plus (+) side is facing up in the holder.
- Keep battery out of children's reach. If swallowed, contact physician immediately.
- To ensure proper contact, wipe battery with clean, dry cloth before use.
- Do not pick up battery using tweezers or other metal tools which may cause short circuiting.
- Do not disassemble, heat or immerse in water, to avoid risk of explosion.

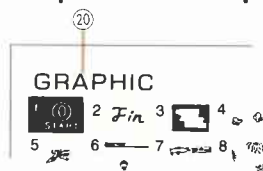
# Viewfinder Displays

Press the ON SCREEN button on the wireless controller to see viewfinder displays on a connected TV screen.

- Only character titles, digital titles, date and time are recorded with scenes.



## Graphic Menu Display



## Music Menu Display



No.	Mode	Display	Description
①	Focus mode	(Focus zone)	When AF or Auto Tracking Focus mode is selected, the focus zone is displayed. In Auto Tracking Focus mode, the ATF zone changes in size according to focal depth of the subject.
		No display	The focus zone is not displayed in MANUAL mode.
②	White Balance	No display	Auto white balance
		WB LOCK	White balance lock
③	High-Speed Shutter	No display	Normal shutter speed (1/50)
		1/250	1/250th of a second
		1/500	1/500th of a second
		1/1,000	1/1,000th of a second
		1/2,000	1/2,000th of a second
④	Digital Title Colour	WHT, RED, GRN, BLU, YEL, SKY, VIO, BLK	Digital title colours are displayed. For normal titles, abbreviated colour codes are displayed. Digital title colour selection; white, red, green, blue, yellow, sky blue, violet, black
		< WHT >	See-through colour (The same eight colours can be selected.)
		R. WHT	Reverse colour (The same eight colours can be selected.)
		< R. WHT >	Reverse see-through colour (The same eight colours can be selected.)
⑤	EDIT Mode	EDIT	"EDIT" is not displayed in other modes. When the EDIT button is pressed, "EDIT" appears in viewfinder.
⑥	Hi8	No display	Standard 8mm mode
		Hi8	Hi8 mode
⑦	Tape Speed	SP	Standard Play
		LP	Long Play

No.	Mode	Display	Description
⑧	Operation	PAUSE	Record pause
		REC	Recording
		PLAY	Normal playback, fast forward playback (9X), or rewind playback (7X)
		STILL	Still playback
		STOP	Stop
		FF	Fast forward
		REW	Rewind
		EJECT	Eject function is operated.
		EJECT (flashes)	Safety mechanism functions
⑨	Tape Counter	– 9:59:59 to 9:59:59	Tape counter reading
⑩	Tape Status	TAPE (flashes)	No cassette is loaded.
		T.END	Tape reaches the end.
⑪	Battery Warning	BATT (flashes)	Battery charge is nearly exhausted.
⑫	Condensation	DEW (flashes)	Condensation is detected in camera (see p.68).
⑬	Lithium Battery Warning	DATE (flashes)	Lithium battery charge is low or no battery is inserted.
⑭	Character Title	2 lines × 16 characters	Alphabet: A to Z Special Characters and Accents: ÄÖÜØÅÆÑÇ Numerals: 0 to 9 Symbols: ,/_ ' ’ ’ ’ ; ; ? ! * &
⑮	Character Title Colour	WHT, RED, GRN, BLU, YEL, SKY, VIO	Character title and date/time colour codes are displayed. Character title and date/time colour selection: white, red, green, blue, yellow, sky blue, violet
⑯	Time	12:00 AM to 11:59 PM	Present time
⑰	Date	1. JAN. 1990 to 31. DEC. 2010	Current date
⑱	Timer Recording Menu	→SELF SELF 30 INT.10 INT.20 INT.60	→ Arrow indicates selected mode.
⑲	Timer Recording	0SEC—10SEC	Recording reminder
		SELF10—SELF1	Self-timer countdown
		SELF30—SELF1	Self 30 recording
		INT.10	10 sec. interval recording
		INT.20	20 sec. interval recording
		INT.60	60 sec. interval recording
⑳	Graphic Menu	Eight graphic symbols	Press SELECT (graphic) button to display menu.
㉑	Music Menu	Music title	Only one music title at a time is displayed in the viewfinder.
㉒	Music Recording	🎵 1—8	Displayed when music is in use.



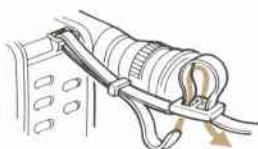
# Camera Preparations

## Attaching Straps



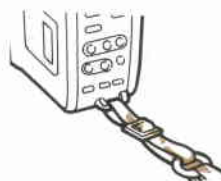
SS-300  
Shoulder Strap

Attach shoulder strap to the strap attachment bars, and adjust it to the most comfortable length.

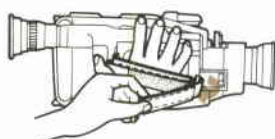


WS-20 Wrist Strap  
(Option)

The optional wrist strap can only be attached to the lower strap attachment bar.

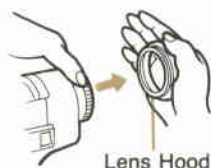


## Adjusting Grip Belt



Tighten or loosen grip belt as necessary for a comfortable fit. Hold grip with your right hand while adjusting grip belt with your left.

## Attaching and Removing Lens Cap and Lens Hood

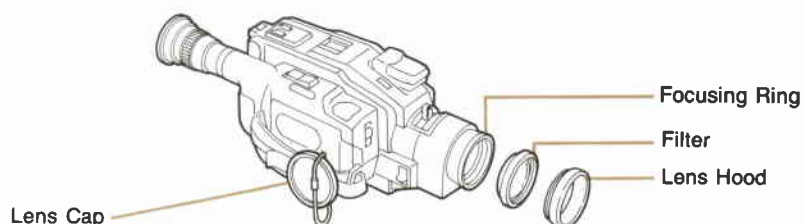


Lens Hood

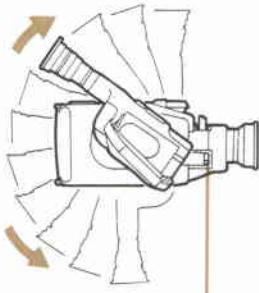
Remove lens cap before recording and hook it onto grip belt using clip on lens cap. Replace lens cap again when you stop recording or turn the camera off.

When using a filter, attach the lens hood so the lens cap can be replaced.

- To remove the lens hood, hold focusing ring and filter with one hand and loosen the lens hood using the flat palm of your other hand, not your fingers (see diagram left).



## Adjusting 180° FlexiGrip with Integral Electronic Viewfinder

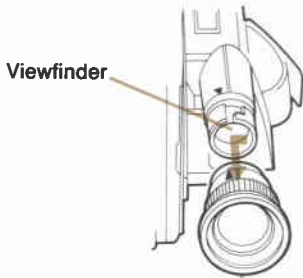


GRIP UNLOCK  
Switch

The 180° FlexiGrip allows you to adjust the camera angle to 5 click-positions up or down (every 18°). Slide and hold GRIP UNLOCK switch to release the grip. Then rotate grip to desired position, until grip locks into place. Release GRIP UNLOCK switch.

- The grip cannot be rotated when the optional RS-800 Rain Shield is used. Use the camera with the grip set horizontally.

## Sports Finder



Sports Finder

The Sports Finder allows you to monitor the viewfinder from as much as an arm's length from the camera.

To remove:

Align the triangular marks on grip and finder.

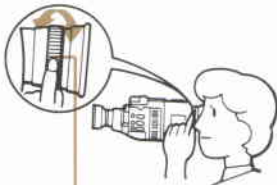
Gently slide finder off.

To attach:

Slide finder onto grip to align triangular marks.

Turn finder to the right to lock in place.

## Adjusting Diopter



Diopter Adjustment Ring

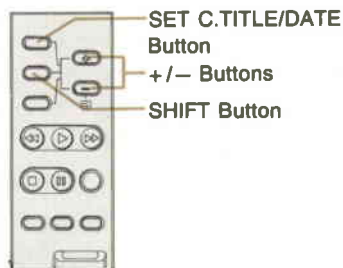
Adjust the diopter to individual eyesight correction when using the camera for the first time, when changing camera operators, or when changing eye distance from the finder.

To adjust diopter:

Turn the camera on and turn diopter adjustment ring until viewfinder displays are clearly visible.

- For the sports finder, you must adjust the diopter everytime you change eye distance from the finder.

## Setting Date and Time

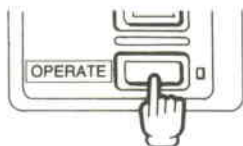


Set date and time when you first begin using the camera or you change the lithium battery without back-up power. See p.58 for recording date and time.

Example: Setting date to 8 July, 1991 and time to 2:35 p.m.

Partial changes in date and time are not possible. To make any adjustments perform steps two through twelve.

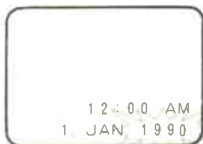
1



**Turn camera on.**

- OPERATE/CAUTION indicator lights up.

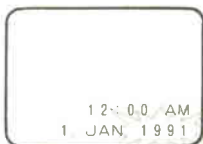
2



**Press and hold SET C.TITLE/DATE button for approx. three seconds.**

- Date and time are displayed in viewfinder.
- Year display flashes in viewfinder.

3



**Press (+) and (–) buttons to scan year display.**

- Press once to scan one year at a time.
- Press and hold to scan years quickly.
- Press (–) button to scan display in reverse order.

→ 1990 ↔ 1991 ↔ ..... ↔ 2008 ↔ 2009 ↔ 2010 ←

4



**Press SHIFT button when correct year is shown.**

- Year is set and month display flashes.

5



**Press (+) and (–) buttons to scan month display.**

→ JAN. ↔ FEB. ↔ ..... ↔ OCT. ↔ NOV. ↔ DEC. ←

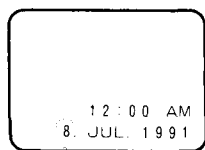
6



**Press SHIFT button when correct month is shown.**

- Month is set and day display flashes.

7

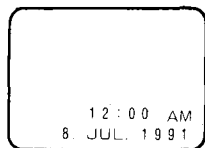


### Press (+) and (–) buttons to scan day display.

- The camera knows the number of days in each month and which years are leap years.

→ 1 ↔ 2 ↔ 3 ↔ ..... ↔ 29 ↔ 30 ↔ 31 ←

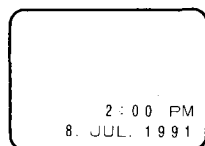
8



### Press SHIFT button when correct day is shown.

- Date is set and hour display flashes.

9

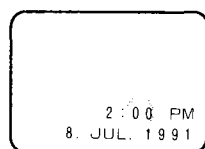


### Press (+) and (–) buttons to scan hour display.

- Hour display rotates through 24 hours.

→ 12AM ↔ 1AM ↔ ..... ↔ 10PM ↔ 11PM ←

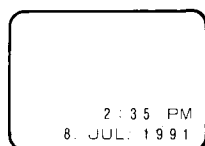
10



### Press SHIFT button when correct hour is shown.

- Hour is set and minute display flashes.

11

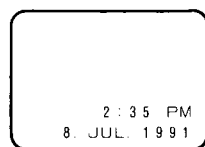
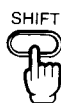


### Press (+) and (–) buttons to scan minute display.

- Minute display rotates through 60 minutes.

→ 00 ↔ 01 ↔ 02 ↔ ..... ↔ 58 ↔ 59 ←

12



### Press SHIFT button when correct minute is shown.

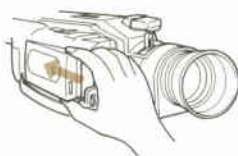
- Minute display stops flashing and auto date and time starts functioning.
- Press DATE button to make display disappear from viewfinder.

### Notes:

- Date and time cannot be set during camera recording or playback.
- When you change or remove the lithium battery, be sure to connect a power source to the camera, otherwise date and time will be cleared from memory.
- Reset date and time when you travel to a different time zone.
- Date and time have the same colour as the character title (see p.55).

# Camera Recording

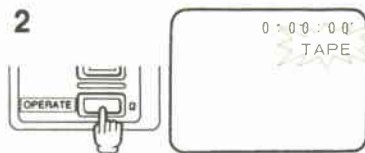
1



## Attach power source.

- When using a battery pack, make sure it is fully charged (see p.9).

2



## Turn camera on.

- OPERATE/CAUTION indicator lights up.

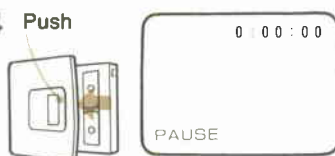
3



## Press EJECT button.

- Video cassette compartment opens.

4 Push



## Load video cassette and close video cassette compartment.

- Insert with window facing out.
- Camera goes into record pause mode.
- If erasure prevention switch is set to “save”, camera goes into stop mode (see p.21).

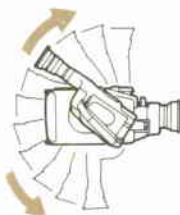
5



## Press TAPE SPEED button to select tape speed.

- For best picture quality, select SP.
- For double recording time, select LP.

6



## Turn grip for easy handling.

- See p.15 for adjusting grip.

7



## Press START/STOP button.

- Recording starts.
- Tally lamp flashes rapidly and “REC” appears in viewfinder.
- See Advanced Functions section for information on making your recordings more effective (pp.36–61).

8



## Press START/STOP button again to temporarily pause recording.

- Press START/STOP button once again to resume recording.
- See “Record Review” (p.23) to check your recording.

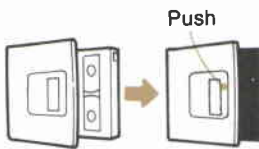
9



**When recording has ended, press EJECT button.**

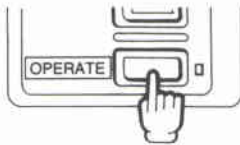
- Video cassette compartment opens.

10



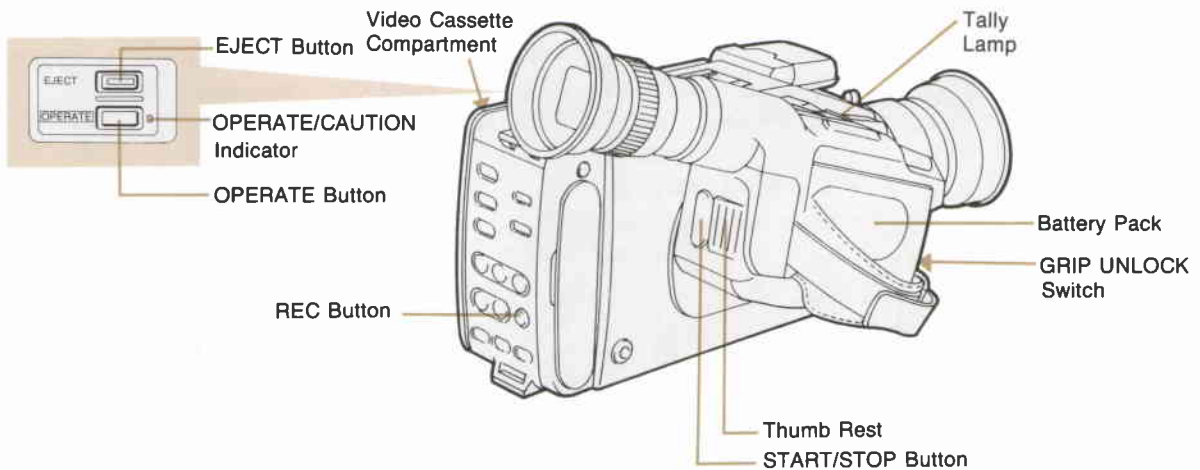
**Remove video cassette and close video cassette compartment again.**

11



**Turn camera off.**

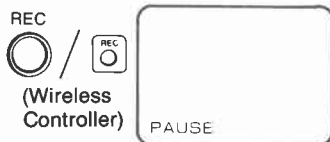
- OPERATE/CAUTION indicator goes off.



The camera automatically detects whether the cassette loaded is a **Hi8** video cassette (for Hi8 recording/playback) or a standard **8** video cassette (for standard recording/playback) and automatically sets the mode.

- A standard 8mm video cassette cannot be recorded in Hi8 mode.
- It is impossible to record in standard mode with a **Hi8** video cassette.

#### Hint:



Press REC button during stop mode to place camera in record pause mode.

- The camera enters record pause mode.
- Use the normal recording procedure for recording.

#### Notes:

- The tape counter will be reset to "0:00:00" when a video cassette is loaded.
- The camera automatically turns off if record pause mode lasts more than approximately seven minutes. To resume recording turn camera on and press START/STOP button.
- For security, check the viewfinder display for correct mode during shooting. (For details, see p.12 and 13.)
- Avoid pressing START/STOP button repeatedly. Put a sufficiently long interval in between, otherwise trouble may result.
- Avoid recording near sources of electric or magnetic fields, such as a TV tower, which can cause noise in the picture or a camera malfunction.
- If tape speed is changed during recording, the tape will contain noise at that point.
- When recording in dark places; if a bright object, such as a candle flame enters the picture, a luminous bar may appear vertically on the screen.

## Tape Counter

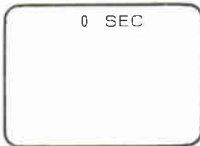


During recording, the tape counter in the viewfinder indicates how long you have recorded.

**You have recorded for approx. 35 minutes and 40 seconds (in SP mode).**

- The tape counter is reset to "0:00:00" when you press the COUNTER RESET button or load a video cassette.
- The tape counter also appears during playback and record search, so you can use it to verify how long the tape has run.
- Tape counter time and actual recording length may be slightly different. Use the tape counter only as an approximate guide.
- When recording in LP mode, actual recording length is approximately twice the tape counter time.
- Tape counter is only activated by recorded tape. Blank tape (even if it occurs between recorded sections of tape) will not activate tape counter.

## Recording Reminder



When you start to record, the camera counts off the first "10" seconds of your recording and displays "0" SEC through "10" SEC in the viewfinder. This function is designed to help you make sure your scenes aren't too short, for easy viewing and editing.

Try to record for at least the full 10 seconds.

- Recording reminder time and actual recording length may be slightly different. Use recording reminder only as an approximate guide.

## Video Cassette Warning



- "T. END" appears in viewfinder when tape is completely used up.



- "TAPE" flashes in viewfinder if camera is turned on and a video cassette is not loaded.

## Battery Pack Warning



- "BATT" flashes in viewfinder when battery pack charge is nearly exhausted.
- If the camera is turned on with an exhausted battery pack attached, it may turn off immediately, without a "BATT" warning.



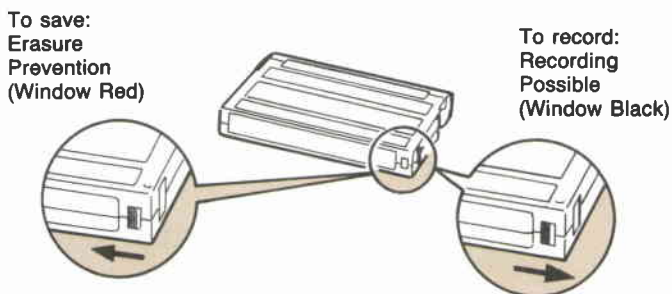
## Video Cassette Notes

- Do not leave video cassette in camera after use, especially when the camera will not be in use for a long time.
- There are several holes on the video cassette back, which are used for transferring information. Do not cover them with adhesive tape, or other materials.
- Do not use video cassettes with damaged or spliced tape or ones that do not meet standards.
- To protect your video cassette put it in the plastic case, after use. Do not store video cassettes where they may be exposed to high temperatures, high humidity, direct sun light, magnetic fields, dust or mold.

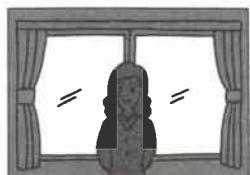
## Video cassette erasure prevention switch

To prevent accidental erasure of recorded material, slide switch at bottom of video cassette as shown. If switch is returned to its original position, recording is possible once again.

This applies to Canon 8mm Video Cassettes only. For other makers' video cassettes, refer to their instruction manual for erasure prevention.



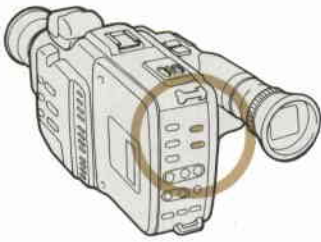
## About Backlighting



Backlighting, caused for example by the sun or an open window behind the subject, can cause the subject to appear dark and lacking in detail. This camera, using a centre-weighted average metering system and a backlight compensation circuit, can adjust exposure for backlighting to some extent.

However, if the subject continues to appear dark in the viewfinder (as pictured at left), approach the subject or use the camera's zoom function to zoom in on the subject. This will reduce backlight in the picture and allow more accurate exposure.

# Record Search (Assembly Editing)



Use the record search function to locate the desired point to resume recording. Record search can also be used to eliminate noise between the recorded scenes. Use this function when you make additional recordings on a previously used video cassette — there will be no noise between previously recorded scene and newly recorded scene.

1



**Place camera in record pause mode.**

2

REC SEARCH



**Press REC SEARCH (+) or (–) buttons to scroll forward or backward to locate recording start position.**

- Press and hold the (+) button to play back the recording forward.
- Press and hold the (–) button to play back the recording backward.
- Camera returns to record pause mode when you release the buttons.

3



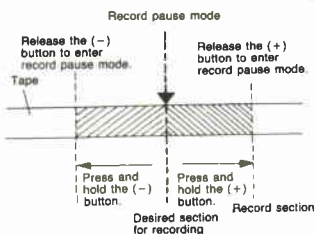
**Press START/STOP button.**

- Recording starts.
- Tally lamp flashes rapidly.

## Explanation:


### Record search (to resume recording)

Searches the desired section to start recording, while in record pause mode.



# Record Review



Press REC SEARCH  button during record pause mode to play back the last segment of recorded scene (approximately three seconds) in the viewfinder.

1



**Place camera in record pause mode.**

2

REC SEARCH



**Press REC SEARCH  button.**

- Scene plays back in viewfinder.
- Camera returns to record pause mode after record review has ended.

3

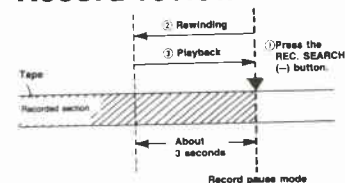


**Press START/STOP button to resume recording.**

- Recording starts again from where it left off.

## Explanation:

### Record review



Plays back your recording in the order ① to ③ (as shown left) after record pause mode is entered. The camera returns to record pause mode after playback has ended.

## Notes:



Noise bar



Skew (distorted picture)

- Noise or skew may appear on the screen during record search mode or record review mode. This is not a malfunction.
- Tape rewinds approximately 0.3 second for each record review, so each time you use record review the last 0.3 second of the recorded scene is lost. Avoid record reviewing the same section of tape over and over.
- During record review, no other operation works. However, if the OPERATE button is pressed, the power turns off.

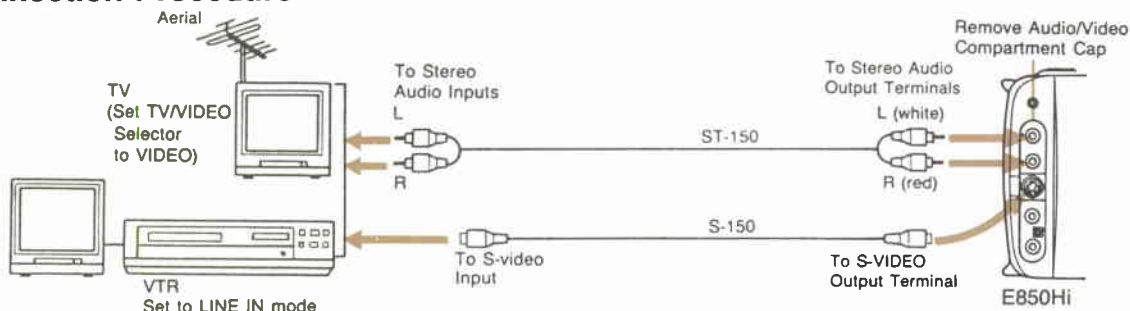
# Playback Connection Procedure

You can use the DC-100 DC Coupler together with the CA-100 Compact Power Adapter (or the optional CB-110 Car Battery Adapter) or the BP-E77K Battery Pack as a power source.

- See p.10 for details on how to connect up the DC coupler and compact power adapter (or car battery adapter).
- The connection procedure for playback depends on whether or not the TV is equipped with audio/video inputs or a SCART terminal.

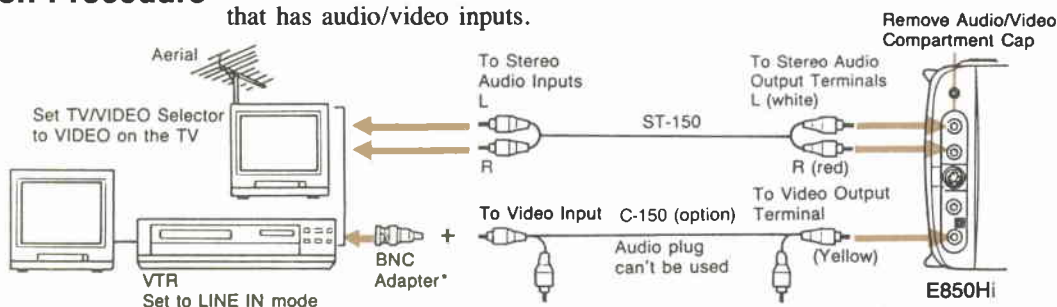
## Using TV/VTR with S-video Input **STEREO**

### Connection Procedure



## Using TV/VTR with Audio/Video Inputs **STEREO**

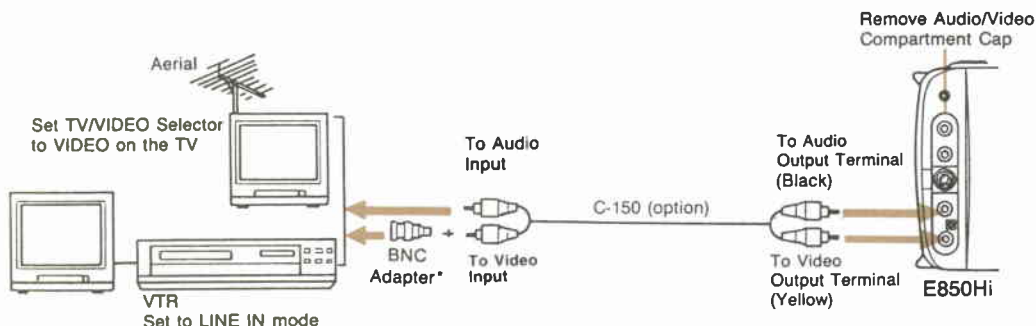
**Connection Procedure** You need the C-150 AV Cable and a power source for playback on a TV that has audio/video inputs.



\* For TV or VTR which has a BNC-type video input, use a commercially available BNC plug adapter for connection.

## Using TV/VTR with Audio/Video Inputs **MONAURAL**

**Connection Procedure** • You need C-150 AV Cable and a power source for playback on a TV that has audio/video inputs.



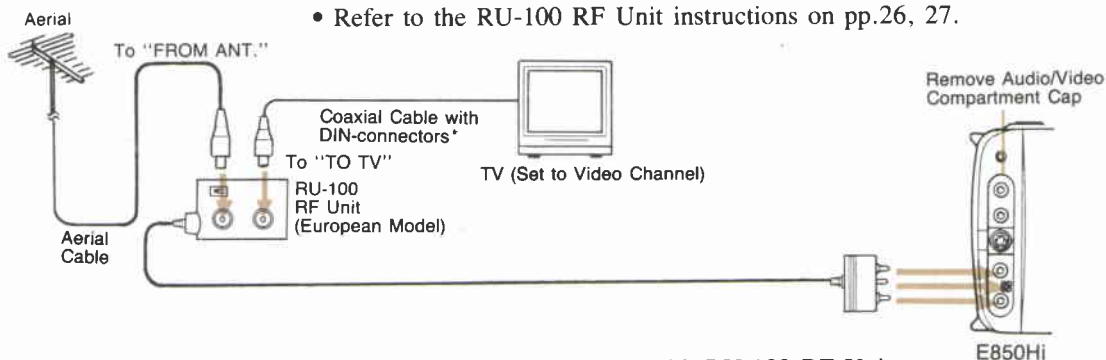
\* For TV or VTR which has a BNC-type video input, use a commercially available BNC plug adapter for connection.

## Using TV/VTR without Audio/Video Inputs **MONAURAL**

### Connection Procedure

#### European Model

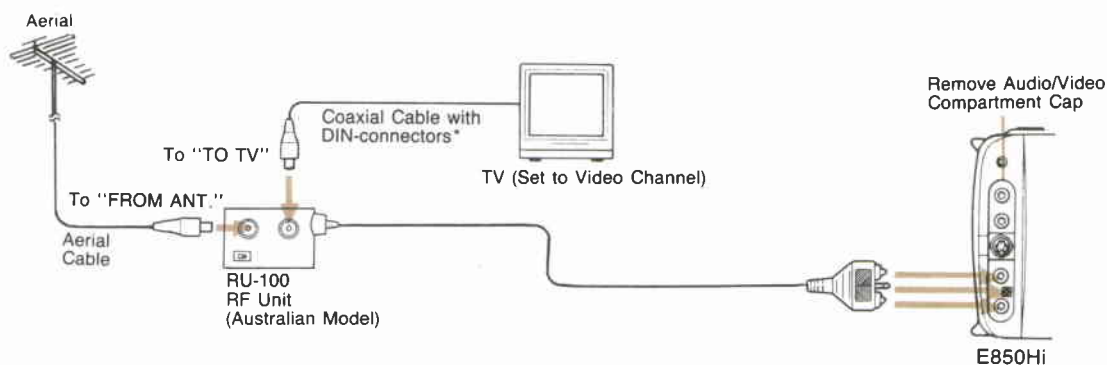
- You need the RU-100 RF Unit and a power source for playback on a TV that does not have audio/video inputs.
- Refer to the RU-100 RF Unit instructions on pp.26, 27.



\* Coaxial Cable with DIN-connectors supplied with RU-100 RF Unit.

#### Australian Model

- Refer to the RU-100 RF Unit instructions on pp.28, 29.

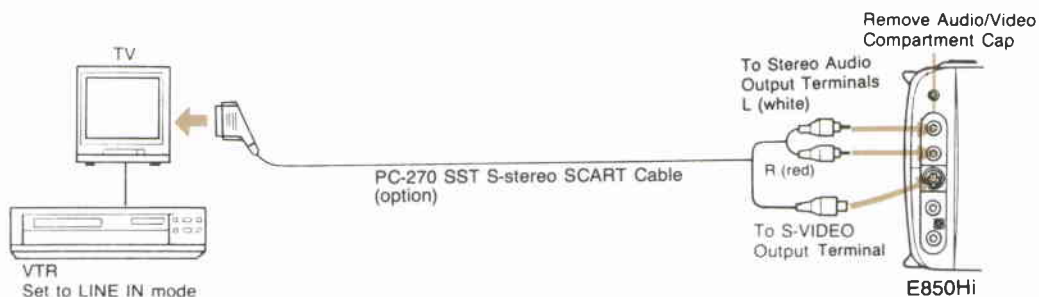


\* Coaxial Cable with DIN-connectors supplied with RU-100 RF Unit.

## Using TV/VTR with S-video compatible SCART terminal **STEREO**

### Connection Procedure

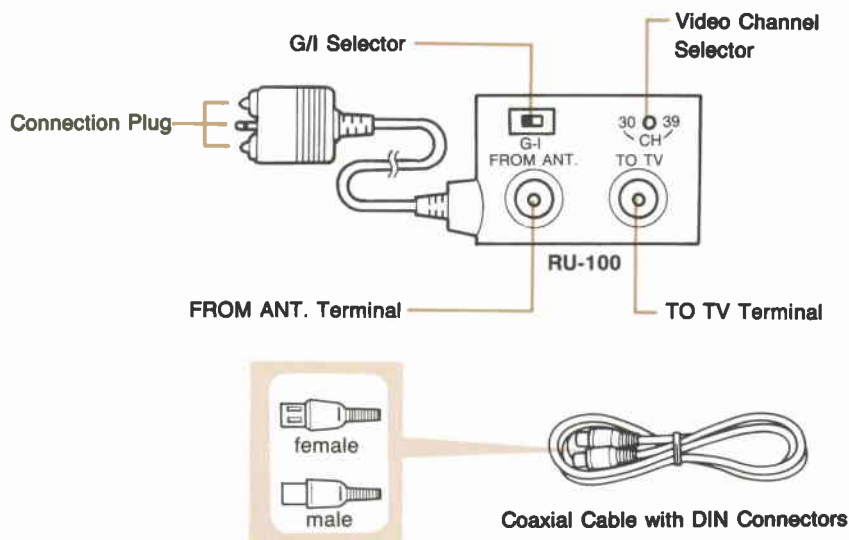
- You need the optional PC-270 SST S-stereo SCART Cable and a power source for playback on a TV that has a SCART terminal.
- When using TV/VIDEO with SCART terminal, use PC-170 ST SCART cable or PC-150 SCART cable.



## RU-100 RF Unit

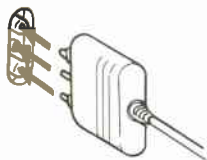
The RU-100 RF Unit is required in order to view recorded video cassettes on a TV which does not have audio/video input terminals. There are two models of RU-100: one for Europe and one for Australia. The connection and setting procedures for the two models differ.

### European Model



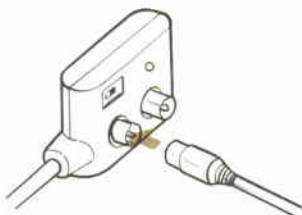
### Connection Procedure

1



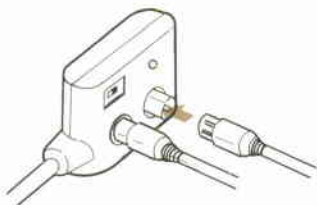
**Attach Connection Plug of RF unit to camera.**

2



**Attach aerial cable to FROM ANT. terminal of RF unit.**

3



**Please note the difference between 'male' and 'female' type DIN connectors on coaxial cable. Connect female connector to TO TV terminal of RF unit, and male connector to aerial input of TV.**

## Selecting Video Channel

Video channel means the channel in your area which is not used by a broadcasting station (Channel 30—39). If your TV does not have audio/video input terminals, your TV set and the Video Channel Selector of the RU-100 RF Unit must be set to the video channel in order to view playback.

1



**Turn TV on.**

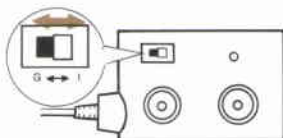
2

PLAY



**Turn camera on, and start playback.**

3



**Set RF unit's G/I Selector using a flat-edge screwdriver.**

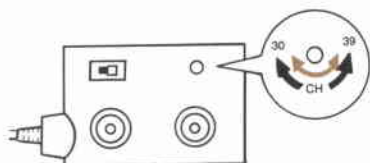
- I: England, South Africa, Hong Kong
- G: Continental Europe
- If G/I Selector is set improperly, picture will appear, but no sound will be heard.

4



**Set TV and Video Channel Selector to video channel (Video Channel Selector is factory-set to CH 32).**

- For example, if video channel in your area is channel 33, tune TV to channel 33, then use a flat-edge screwdriver to set Video Channel Selector of RU-100 to CH 33. Adjust tuning until picture is clear.

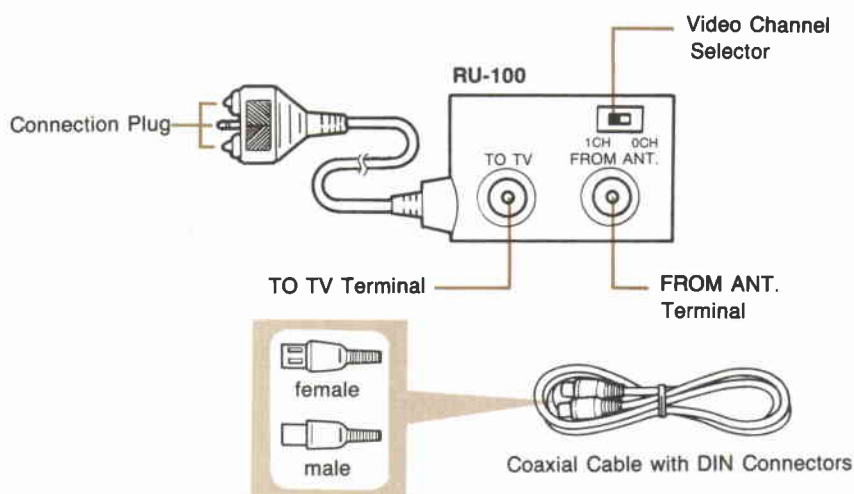


## To View a Regular TV Programme

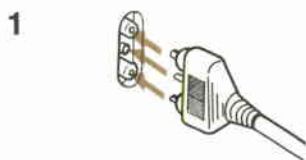
The RU-100 RF Unit has an automatic signal selector which selects the signal from the video camera whenever the camera is connected to the RF unit and the power is turned on. To view a regular TV programme, disconnect the camera from the RF unit, or turn the camera off.



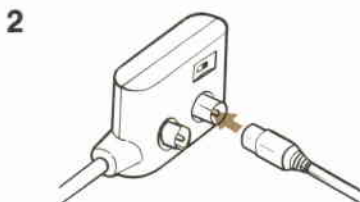
## Australian Model



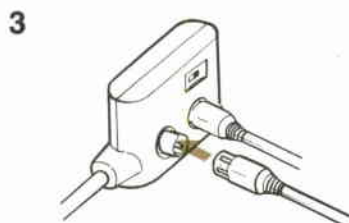
### Connection Procedure



**Attach Connection Plug of RF unit to camera.**



**Attach aerial cable to FROM ANT. terminal of RF unit.**



**Please note the difference between 'male' and 'female' type DIN connectors on coaxial cable. Connect female connector to TO TV terminal of RF unit, and male connector to aerial input of TV.**

## Selecting Video Channel

Video channel means the channel in your area which is not used by a broadcasting station, and can be used for playback of video cassettes (Channel 0 or 1). If your TV does not have audio/video input terminals, your TV set and the Video Channel Selector of the RU-100 RF Unit must be set to the video channel in order to view playback.

1



**Turn TV on.**

2

PLAY



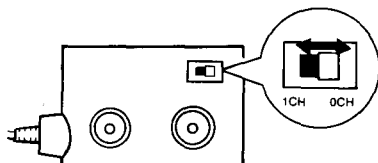
**Turn camera on, and start playback.**

3



**Set TV and Video Channel Selector to video channel (Video Channel Selector is factory-set to CH 1) using a flat-edge screwdriver.**

- For example, if video channel in your area is channel 0, set Video Channel Selector of RU-100 to CH 0, then tune TV to channel 0. Adjust by turning until picture is clear.



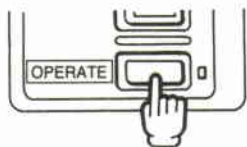
## To View a Regular TV Programme

The RU-100 RF Unit has an automatic signal selector which selects the signal from the video camera whenever the camera is connected to the RF unit and the power is turned on. To view a regular TV programme, disconnect the camera from the RF unit, or turn the camera off.

# Playback Procedure

Before playback, make sure that all connection procedures are completed (pp.24—29).

1



**Turn camera on.**

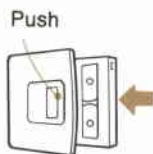
2



**Press EJECT button.**

- Video cassette compartment opens.

3



**Load video cassette in camera and close video cassette compartment.**

- Camera goes into record pause mode.
- If erasure prevention switch on the video cassette is set to “save”, camera goes into stop mode (see p.21).

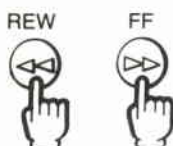
4



**Press STOP button.**

- You must complete step 4 to commence playback.
- Playback functions will not operate if you haven't pressed STOP button.

5



**Locate playback start point.**

- Use FF or REW buttons to locate start point or use high-speed search (see p.32).

6



**Press PLAY button to start playback.**

- You can also monitor playback in viewfinder.
- Tape speed is selected automatically.

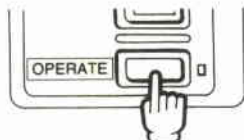
7



**Press STOP button to end playback.**

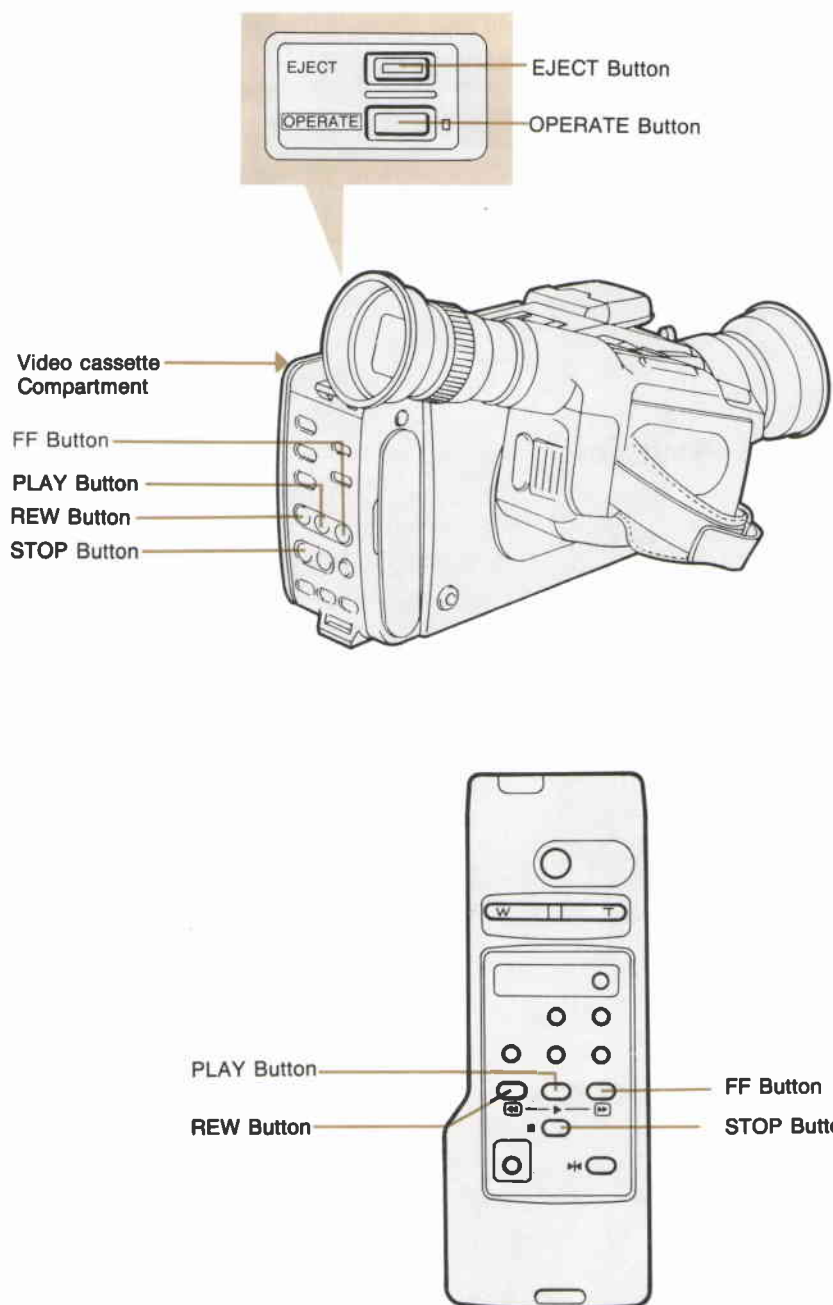
- The tape rewinds automatically if it is played to the end (automatic rewind function).

8



**Turn camera off.**

- OPERATE/CAUTION indicator goes off.



## High-Frequency Feedback

- High-frequency feedback may occur if camera microphone is too close to the TV speaker (only during record or record pause mode). Lower TV volume or place camera in stop mode.
- Monitoring sound is possible only during record or record pause mode, so howling will not occur.

# Special Playback Methods

In addition to normal playback, your camera also has fast forward, rewind and still playback. Playback is controlled by pressing buttons on the camera or by using the wireless controller.

## Fast Forward Playback



Press and hold FF button during normal playback for playback at about nine times normal speed.

- Release the button to resume normal playback.

## Rewind Playback



Press and hold REW button during normal playback for reverse playback at about seven times normal speed.

- Release the button to resume normal playback.

## Still Playback



Press PAUSE/STILL button during normal playback to pause the picture. Press PAUSE/STILL button again or PLAY button to resume normal playback.

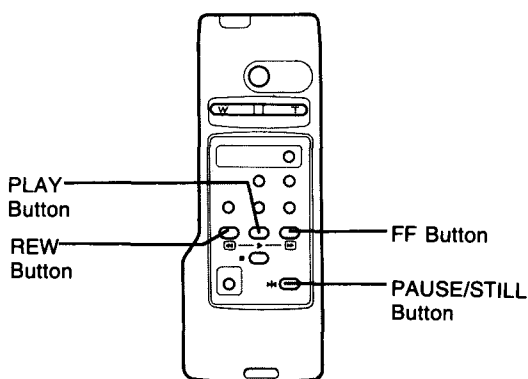
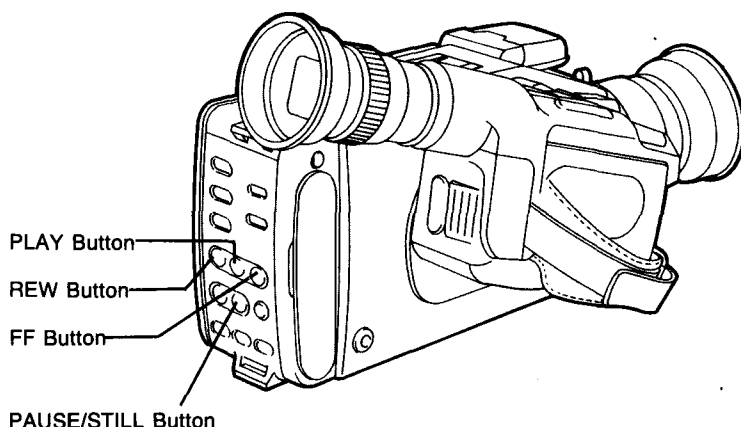
## High-Speed Search



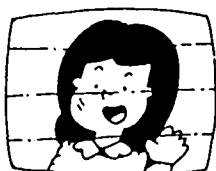
Press and hold the FF button during fast forward mode to view scenes at approximately 15 times (SP) or 30 times (LP) normal speed. Release the button to resume normal fast forward.



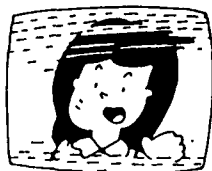
Press and hold the REW button during rewind mode to view scenes in reverse at approximately 15 times (SP) or 30 times (LP) normal speed. Release the button to resume normal rewind.



## Notes:



During fast forward and rewind playback modes



During still playback

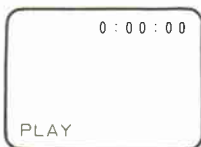
- The camera automatically goes into stop mode after more than seven minutes of continuous still playback.
- Audio portion of tape cannot be heard during special playback.
- Several noise bars appear during fast forward or rewind playback.
- The picture flickers a little during still playback.
- When fast action scenes are shown during still playback, the picture may blur.
- Certain TVs may show the special playback picture in black and white, or the picture may roll or divide.
- Notes about special playback of tapes recorded in SP:
  - (1) The still playback picture will contain much more noise than for a tape recorded in LP.
  - (2) During fast forward or rewind playback, noise bars will be much wider than for a tape recorded in LP.
- The high-speed search picture might not appear on some TVs.

# Tape Return

TAPE RETURN button on the wireless controller allows you to quickly locate a desired scene on the video cassette.

- Camera does not have a TAPE RETURN button. Use the wireless controller to operate tape return.

1 COUNTER  
RESET



**During playback if you locate a scene you want to watch again later, press COUNTER RESET button.**

- Tape counter resets to "0:00:00".

2



**Press STOP button when playback finishes.**

3



**Press TAPE RETURN button.**

- Tape rewinds and stops automatically when counter reading reaches near "0:00:00".

4



**Press PLAY button.**

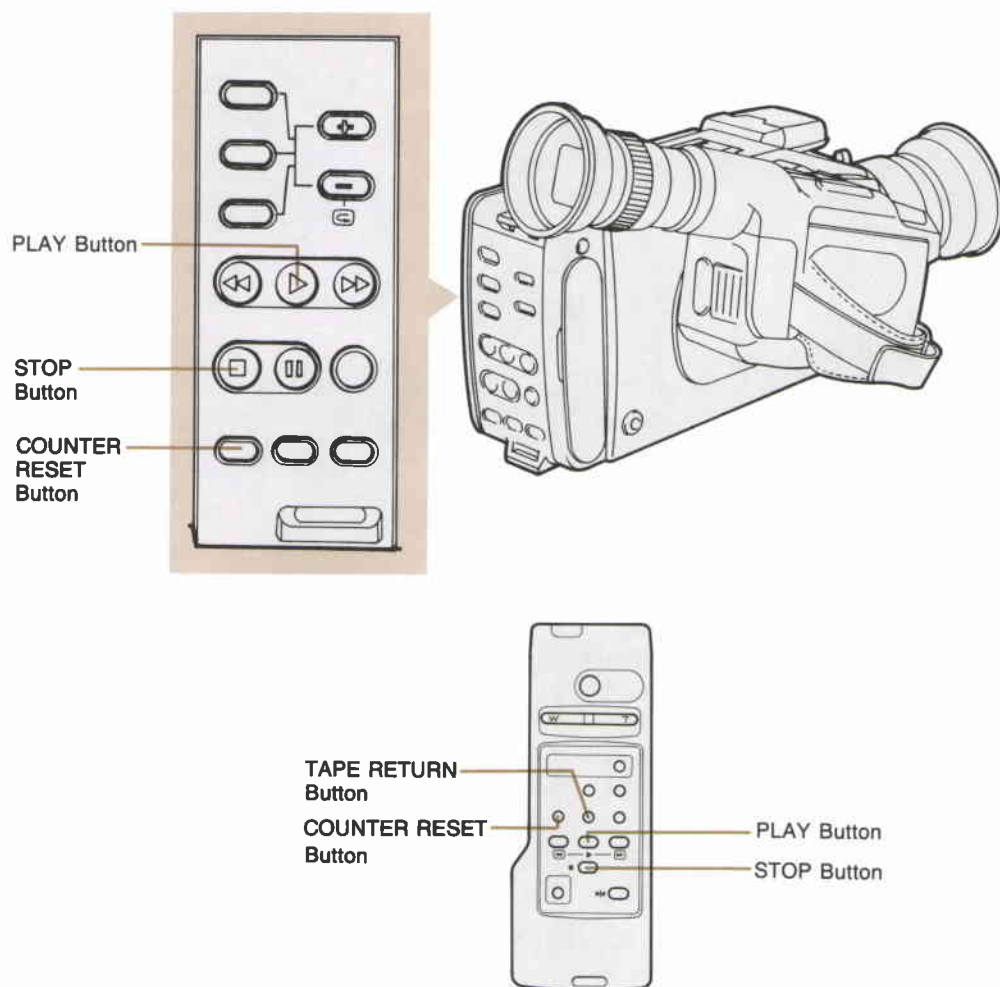
- Playback starts at the spot where you pressed COUNTER RESET button.

---

## Remark:

Every time you load a video cassette, the tape counter automatically resets to "0:00:00". This means that after recording you can use the tape return function to locate the recording start point.





#### Notes:

- Tape counter reading is only approximate. Use it as a guide.
- Tape return does not function when initial tape counter reading is near "0:00:00".
- Press STOP button to cancel tape return.

# White Balance



White balance is the adjustment made to make white subjects look white and to obtain a natural colour balance for recordings. The camera has two systems for white balance adjustment: auto and lock.

## Auto White Balance

Auto white balance is set automatically when camera is turned on, and makes white balance adjustment for normal indoor and outdoor conditions.

## White Balance Lock

Use white balance lock when you shoot subjects not suitable for auto white balance. This function is most useful for special shots. For example, for best results when shooting sunsets and other scenes with red colouring, adjust the camera by pointing at a blue object and pressing AWB/LOCK button.

- White balance lock also works without using a white object. Set the zooming lever to wide-angle end and press AWB/LOCK button to adjust for the scene. However, this is not suitable for scenes with one dominant colour or for macro recording.

## Subjects Not Suitable for Auto White Balance

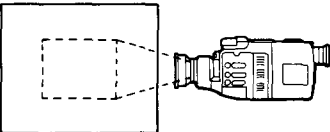


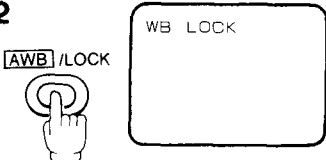
Auto white balance may not work well in the following instances, and white balance lock will probably give you better results:


- Subject with one dominant colour, such as sky, sea or forest.
- Subject for a macro recording, such as a close-up of a flower.

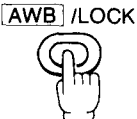
Use white balance lock to allow for such conditions.

## White Balance Lock Procedure

- 1**  **Point camera lens at a white object (such as a sheet of paper) for 10 seconds, so that it completely fills viewfinder.**
- Set zooming lever to telephoto end.
  - Be sure sufficient lighting is available.
  - There is no need for focusing.

- 2**  **Press AWB/LOCK button.**
- “WB LOCK” appears in viewfinder.

- 3**  **Make your recording.**

- 4**  **Press AWB/LOCK button again to reset auto white balance.**
- “WB LOCK” display disappears from viewfinder.

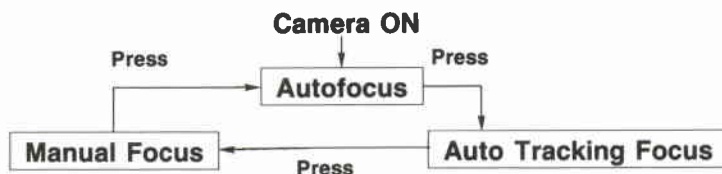
---

### Notes:

- White balance lock clears automatically when playback is activated or the camera is turned off.
- Reset white balance again if the light source changes during white balance lock.
- Use white balance lock even under normal lighting conditions to achieve a more precise colour balance.

# Focusing

The camera has three focus modes as shown below. Each time the FOCUS button is pressed, the selected mode changes as shown below.

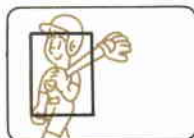
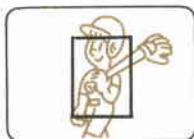


## Autofocus



When you turn the camera on, autofocus mode is selected automatically. In autofocus mode, the camera aligns the subject in the centre of the focus zone in the viewfinder. Autofocus is effective for a subject at least 0.6 m away from the camera.

## Auto Tracking Focus



The camera automatically keeps track of the subject in the centre of the auto tracking focus zone (ATF zone) in the viewfinder. Auto tracking focus is effective for subjects at least 0.6 metres away from the camera.

- See page 40.

## Manual Focus

Adjust the focusing ring to focus on the subject.

Use manual focus when you shoot subjects not suitable for autofocus.

- See page 42.

## Subjects Not Suitable for Autofocus

Autofocus may not work well in the following instances, and manual focus will probably give you better results:



Shiny subjects or subjects that reflect light



Horizontally striped subjects



More than one subject in viewfinder/  
different distances



Rapidly moving subjects



Slanted subjects



Subjects with little or no contrast (a white wall, for example)



Subjects behind glass (windows with water or dirt on them)



Dark subjects



Macro recording or when shooting using a tele-converter or wide converter



Night scenes

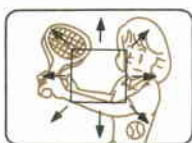
### Notes:

- Do not touch focusing ring during autofocus.
- Shooting subjects at a distance of less than 1 metre while using autofocus may result in poor picture quality. Be sure to use adequate lighting in this situation.
- Under the following conditions it will take longer for autofocusing;
  - When you are focused on a subject further than 1.2 metres, and quickly change to focus on a subject within the tele-macro range (0.6—1.2 metres).
  - When you are focused on a subject within the tele-macro range (0.6—1.2 metres), and quickly change to focus on a subject at a further distance.
  - When shooting rapidly moving subjects within the tele-macro range (0.6—1.2 metres).
- When the focused subject only occupies a small area within the autofocus zone, autofocusing may take longer. Change framing so the subject occupies a larger area within the autofocus zone.

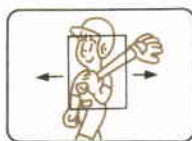
# Auto Tracking Focus

Use this function for best results when shooting a moving subject, or when you want to focus on a subject which is not in the centre of the viewfinder.

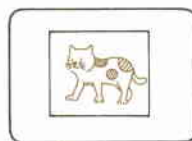
- Frame subject in the centre of autofocus zone using normal autofocus.
- Press FOCUS button and select auto tracking focus mode. Auto tracking focus zone (ATF zone) appears in the viewfinder. The subject with the highest contrast inside the ATF zone will be detected, and tracked so they are kept in the centre of the ATF zone. When subject has been focused properly, ATF zone will begin to flash rapidly.
- ATF zone will now follow subject's movements within the viewfinder screen.  
(This function also lets you pan the camera, to keep track of a moving subject.)
- If subject leaves viewfinder screen, ATF zone will return to the centre of viewfinder and flash slowly.



When the focal depth of the subject is shallow, the ATF zone appears as a small box. The ATF zone can follow movements of the subject very freely.



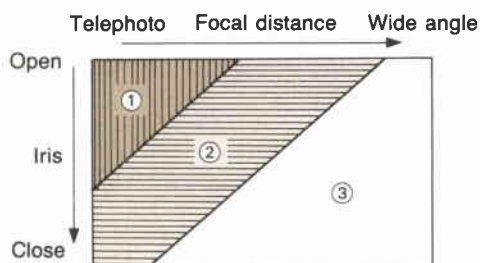
When the focal depth of the subject is of medium depth, the ATF zone appears as a medium sized box. The ATF zone can follow movements of the subject back and forth, but cannot follow movements up and down.



When the focal depth of the subject is deep, the ATF zone appears as a large box, and does not move.

- Depth of field is determined by focal distance and size of the shutter aperture.

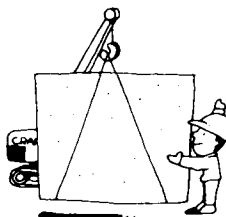
- ① Shallow
- ② Medium Depth
- ③ Deep



## Subjects Not Suitable for Auto Tracking Focus



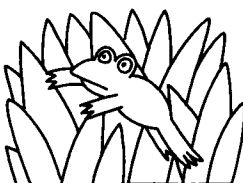
When there is an object with high contrast in the background (such as a bright, shiny object).



Subjects with little or no contrast (such as a object of the same colour).



Dark subjects



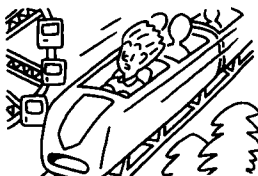
Subjects with little or no contrast to their background



Two subjects, one in front of the other at the same focal distance (especially if one subject has a stronger contrast).



Many moving subjects of roughly the same brightness in the viewfinder.



Rapidly moving subjects

### Hint:

- The camera follows the contrast of the subject; however if the subject is moving too quickly, or if the camera is moved suddenly (tilting, panning, etc.), the camera may be unable to track the subject (this tends to occur particularly when recording at close range using telephoto). When this happens, change framing to middle or wide angle then resume shooting.
- \* Zooming in on a person often causes their contrast to decrease suddenly. In such cases, reframe the subject as described above and resume shooting.

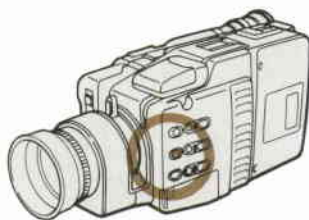
### Note:

- If the subject is not focused precisely, auto tracking focus may not track the subject correctly.



# Manual Focus

Use manual focus when you shoot subjects not suitable for autofocus.



1

AF /ATF/MANUAL



**Press FOCUS button to select manual focus.**

- Focus zone disappears from viewfinder.

2



**Rotate zooming lever to telephoto end.**

3



**Watch through viewfinder and rotate focusing ring to focus on subject.**

4



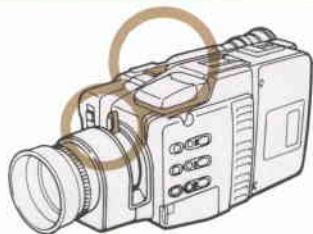
**Use zooming lever to frame subject properly.**

- Camera automatically returns to autofocus when camera is turned off or placed in playback mode.
- Press FOCUS button to stop manual focus and return to autofocus.

## Focus Lock

When the FOCUS button is pressed twice during autofocus, the subject is focused and locked, even if the subject moves to the right or left of centre. To focus on another subject, adjust with the focusing ring or press the FOCUS button again and adjust with autofocus.

# Zooming

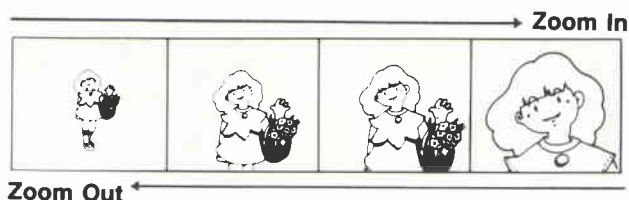


Zoom in on hard-to-catch subjects or add close-up personal touches to your recordings. Zoom out to reveal a breathtaking view. The camera has three zooming methods: power zoom, manual zoom and wireless zoom.



## Power Zoom

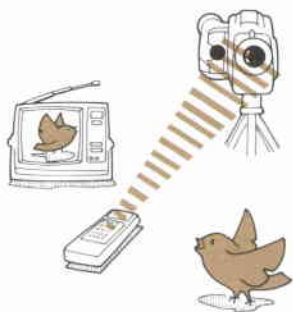
Press power zoom buttons on the grip.  
Press and hold T to gradually zoom in to telephoto.  
Press and hold W to gradually zoom out to wide angle.



## Manual Zoom



Turn zooming lever to rotate zooming ring.



## Wireless Zoom

The wireless controller allows you to control zoom operation from a distance.

Press and hold ZOOM T button to gradually zoom in to telephoto.  
Press and hold ZOOM W button to gradually zoom out to wide angle.

- Mount camera on a tripod.
- Use a TV monitor during wireless zooming to view shots.

### Remarks:

- Even the slightest hand movement will appear in the recording when shooting in the telephoto range. Use a tripod for better results.
- Overuse of zooming may make recordings seem too busy. Selective use of zooming is more effective.

# Macro Recording



Macro recording allows you to record small subjects such as flowers and insects close-up, to full screen, and achieve extremely fine detail in your pictures.

You can approach a subject to as close as 4 mm, analyzing rich detail while enjoying a full-screen image and greater perspective.

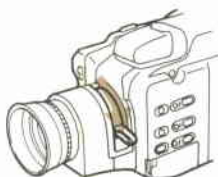
1  
AF /ATF/MANUAL



**Press FOCUS button to select manual focus.**

- Focus zone disappears from viewfinder.

2



**Rotate zooming lever to wide angle end.**

3



**Press and hold MACRO button on zooming lever and move lever into wide macro range.**

4



**Approach subject to desired size in viewfinder.**

- Be sure there is adequate lighting.
- You can approach the subject as close as 4 mm.

5



**Use zooming lever within macro range for fine focusing.**

- Focus within wide macro range.

---

## Notes:

- Move camera forward or backward slightly to change subject image size and then fine focus again.
- A tripod is recommended for better recording stability.

# High-Speed Shutter



The high-speed shutter allows you to capture sports and other fast action scenes clearly. The camera has four high-speed shutter settings: 1/250th, 1/500th, 1/1,000th and 1/2,000th of a second. Select the correct shutter speed according to subject speed and brightness. Normal operating speed is 1/50th of a second.

1



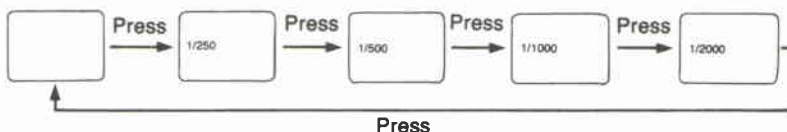
**Point camera at subject and compose scene in viewfinder.**

2

SHUTTER



**Press SHUTTER button.**



3



**Follow normal shooting procedures.**

4

SHUTTER

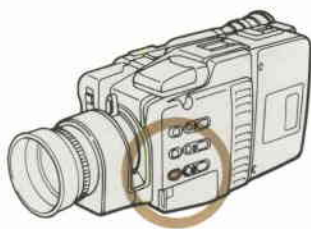


**Press SHUTTER button to return to normal shutter speed.**

## Notes:

- Use this function outdoors with bright light.
- Scenes shot with a high-speed shutter will appear somewhat jerky during normal playback.
- A scene shot with the high-speed shutter works best with special playback. Use a VTR capable of noise-free special playback for best results.
- If the camera is turned off and on again, shutter setting automatically returns to normal (1/50).

# Fade



Fade effect allows you to make scenes gradually appear or disappear in smooth transition.

## Fade In

Scene gradually appears from a blank white screen.

1



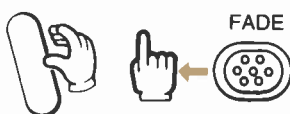
**Place camera in record pause mode.**

2



**Press and hold FADE button until scene disappears completely from viewfinder.**

3



**Press START/STOP button to start recording and then release FADE button.**

- Scene gradually fades in.

## Fade Out

Scene gradually disappears, fading to a blank white screen.

1



**Press and hold FADE button during recording.**

- Scene gradually fades out.

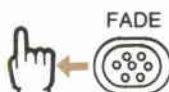
2



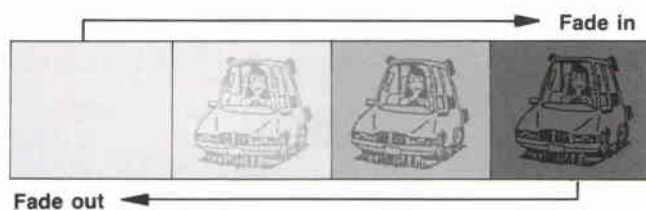
**Press START/STOP button when scene has disappeared completely.**

- Camera goes into record pause mode.

3

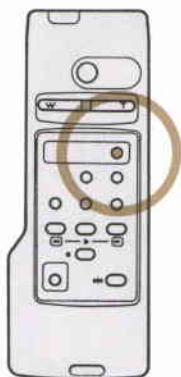


**Release FADE button.**

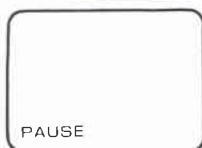


## Wireless Fade

The FADE START/STOP button on the wireless controller lets you begin and end recording with a smooth fade in and fade out.



1



**Place camera in record pause mode.**

2



**Press FADE START/STOP button.**

- Scene immediately disappears, camera recording begins within one to two seconds, and then picture gradually fades in.

3



**When scene is recorded, press FADE START/STOP button again.**

- Scene gradually fades out, then camera enters record pause mode in about five seconds.

### Notes:

- Sound fades along with the image.
- Character and digital titles, graphics and music, date and time do not fade.
- Fade effects (except fade start/stop) can be used at any time during recording.

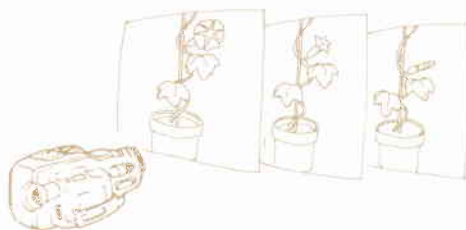
# Self and Interval Timer Recording



Set the self-timer and the camera will automatically start recording after a 10-second standby period, letting you get in on the action. The camera can be set to record for 30 seconds or until you turn it off.

Interval timer sets the camera to record for about 0.5 seconds each time a fixed interval passes. This allows you to record the changes in scenes like flowers blooming, animal activities or even your own daily activities. You can choose from intervals of 10 seconds, 20 seconds or 60 seconds.

- You can record scenes without sound by removing the microphone (see p.59).



1



**Place camera in record pause mode.**

2

SELF/INT.



**Press SELF/INT. button.**

- Menu appears in viewfinder.

3



**Press (+) and (-) buttons to select desired mode.**

- (+) button moves the (→) mark down the list and (-) button moves the (→) mark up.

## Self-Timer

- SELF 10-second standby and then continuous recording  
SELF 30 10-second standby, 30-second recording and then record pause mode

## Interval Timer

- INT.10 Recording at every 10 seconds  
INT.20 Recording at every 20 seconds  
INT.60 Recording at every 60 seconds

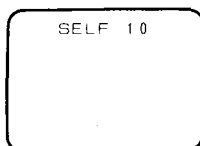


4



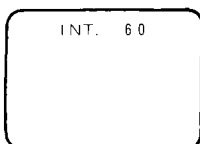
## Press START/STOP button to start recording.

- Selected mode appears in viewfinder.



### For self-timer recording:

- Countdown 10—1 appears, followed by: Continuous recording (SELF recording), or Countdown 30—1 display (SELF 30 recording).
- Tally lamp flashes slowly during standby and flashes rapidly when recording starts.
- Recording starts automatically after countdown.



### For interval timer recording:

- After selected mode appears in viewfinder, standby and recording (about 0.5 seconds) are alternately performed.
- Tally lamp flashes slowly during interval timer recording.

5



## Press START/STOP button again to stop recording.

- Camera goes into record pause mode.

### Notes:

- Press the START/STOP button to cancel self-timer recording during countdown.
- Maximum continuous recording time using a fully charged BP-E77K Battery Pack is about 40 minutes at room temperature. During interval recording, power consumption is the same whether in standby or actual recording. Hence, recording time with the battery pack will be extremely short. For best results in interval recording, use the CA-100 Compact Power Adapter or the optional CB-110 Car Battery Adapter.
- The camera will automatically turn off after about six hours of interval operation in order to protect camera parts from damage.
- Noise occasionally may occur at intervals.
- Use only SP mode for interval timer function.

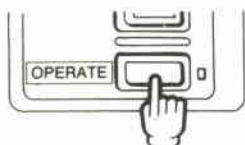
# Built-in Graphics and Music

The camera is equipped with eight different graphics and eight tunes that you can select from, to add graphics and background music to your recordings.

- Select the graphic and/or music you want before you start recording. You cannot make selections after recording starts.

## Selecting Graphic and Music

1



**Turn camera on.**

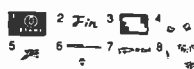
- OPERATE/CAUTION indicator lights up.

2



**Graphic menu**

GRAPHIC



**Music menu**

MUSIC

1 ONE SUNNY DAY

**Press SELECT (graphic or music) button.**

- Press SELECT (graphic) button for graphics and SELECT (music) button for music.
- Selection menu appears in viewfinder.

3



**Graphic menu**

GRAPHIC



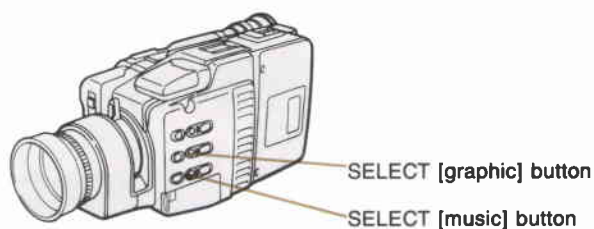
**Music menu**

MUSIC

2 WIEGENLIED

**Select graphic and/or music**

- **Selecting graphics:**  
Press SELECT (graphic) button to move highlight to desired graphic. Highlight moves from left to right each time you press SELECT button.
- **Selecting music:**  
Only one music title at a time is displayed in the viewfinder. Press SELECT (music) button until the desired title is displayed.
- **To check selected graphic:**  
Place camera in record pause mode and press ON/OFF (graphic) button.
- **To check selected music:**  
Place camera in record pause mode and press ON/OFF (music) button. Listen to selected music through the headphones.
- The graphic/music menu display disappears 3 seconds after the SELECT button is pressed.
- Graphic and music selections are stored in memory. The next time the SELECT button is pressed, the previously memorized selections are displayed.



### Note:

- Digital titles (see p.56) and graphics cannot be used together. Selecting graphic while digital title is selected causes digital title to be deleted from memory. Don't try to display other menus during digital title display.
- You cannot display graphic or music menu during self and interval timer recording.

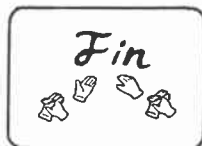
## Built-in Graphics and Music

The following graphics are available:

### 1. 3-2-1-0 Start



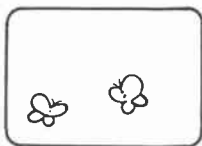
### 2. Fin



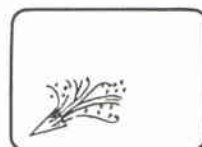
### 3. Paint Wash



### 4. Butterflies



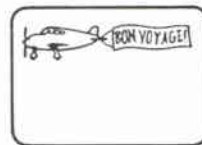
### 5. Party Crackers



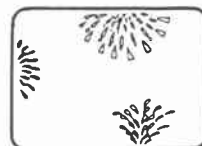
### 6. Interview Microphone



### 7. Bon voyage



### 8. Fireworks



The following music selections are available:

### 1 ONE SUNNY DAY

### 2 WIEGENLIED

### 3 WALTZ OF A PUPPY

### 4 MENUETTO

### 5 JINGLE BELLS

### 6 AULD LANG SYNE

### 7 WHEN THE SAINTS GO MARCHIN' IN

### 8 SUR LE PONT D'AVIGNON

## Recording Graphics and Music

1



Place camera in record pause mode.

2



Press **START/STOP** button to begin recording.

3



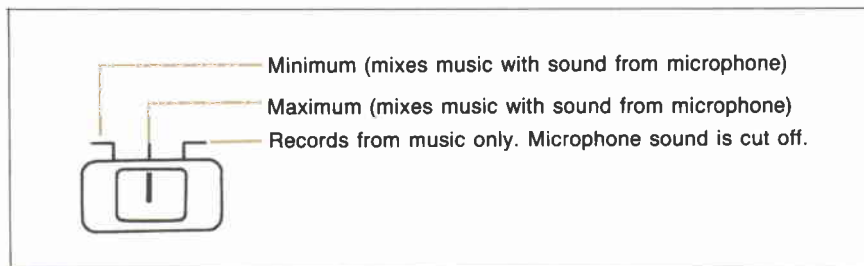
Press **ON/OFF (graphic)** button to record selected graphic and/or **ON/OFF (music)** button to record music.

- Graphic appears in viewfinder.
- Music can be monitored by connecting headphones to headphones terminal.
- For volume adjustment use music volume selector.

ON/OFF — GRAPHIC



ON/OFF — MUSIC



- Graphics and music can be recorded together. And add graphics and music right from the start of recording by reversing steps two and three.

4

ON/OFF — GRAPHIC

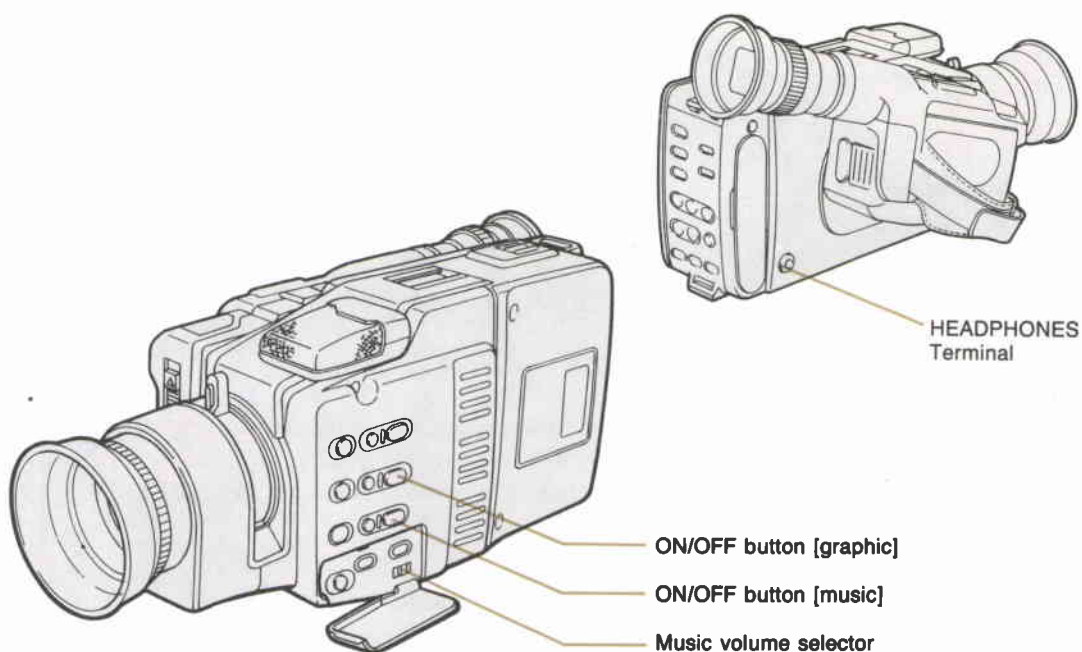


ON/OFF — MUSIC



Press **ON/OFF (graphic)** button once to stop graphic recording. Press **ON/OFF (music)** button once to stop music recording.

- When you press **ON/OFF (graphic)** button, it may take a few seconds before graphic display stops.
- Music fades out automatically.
- Music repeats over and over until **ON/OFF (music)** button is pressed.

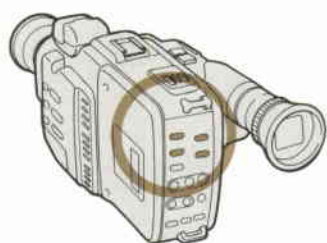


---

**Notes:**

- Graphics or music cannot be changed or selected during recording. First pause recording and then select a different graphic or music.
- You cannot use graphic or music functions during playback.
- Viewfinder displays are black and white, so graphic colours are indicated by grey scale density. Select a light background for dark graphics and a dark background for light graphics. Try a test recording first to check graphic colour.

# Add Titles to Recordings



The camera allows you to create and store character and digital titles, which can be superimposed on recordings together with the date and/or time.

## Creating Character Titles

Remember to create your title before you start recording.  
The title may be one or two lines of up to 16 characters each.  
Character titles may be superimposed over both digital titles and graphics.


**1**



**Turn camera on.**

- OPERATE/CAUTION indicator lights up.


**2**



**Press SET C.TITLE/DATE button to display title lines in viewfinder.**

- A flashing dot or character indicates that the cursor is present.


**3**



**Press SHIFT button to move the cursor to position where you want to start the title.**

- Press once to move cursor one space right.
- Press and hold to move cursor continuously.
- Cursor does not move backwards.

**4**



**Use (+) and (−) buttons to scan list of title characters.**

- Press (+) button to scan forward through the list.
- Press (−) button to scan the list in reverse order.
- Press once to scan characters one at a time.
- Press and hold to scan characters quickly.

### Title Characters List

→ □ A B C D E F G H I J K L M N O P Q R S T U V W X Y Z Ä Ö Ü Ø Å Æ Ñ Ç È □ ←  
→ & \* ! ? ; : " ' - / . , 9 8 7 6 5 4 3 2 1 0 ←

- If you select □, a flashing dot appears in the viewfinder, but a space will appear during actual recording and playback.
- Press both (+) and (−) buttons simultaneously to erase all characters at and to right of cursor.

5



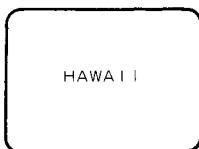
When the character you want is displayed, press **SHIFT** button again to move to next cursor position.

6



Follow steps four and five until your title is complete.

7



When the title is finished, press **SET C.TITLE/DATE** button.

- Title is saved in camera's memory.
- Press **TITLE** button to make title disappear from viewfinder.

8

COLOUR—DISPLAY **CHARACTER**



Press **COLOUR (character title)** button to select desired character colour.

- Each time the **COLOUR (character title)** button is pressed, the colour display changes as shown below.

→ WHT → RED → GRN → BLU → YEL → SKY → VIO →

- When your desired colour code appears, leave the **COLOUR (character title)** button released for about three seconds to determine the colour. Then the colour code will disappear.

#### Notes:

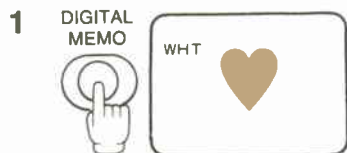
- Because the viewfinder is black and white title changes contrast to the selected colour. If you select the same colour for titles and backgrounds, you may have troubles recognizing titles. Select bright titles for dark backgrounds and dark titles for bright backgrounds.
- Press **DISPLAY (character title)** button to make title disappear from viewfinder.
- When colour of character title is changed, the colour of auto date also changes.
- During playback all colour characters, except white, will have a slightly "fuzzy" edge.



## Creating Digital Titles

Handwritten titles and illustrations can be memorized and superimposed on recordings, in a choice of eight colours.

Digital titles and graphics cannot be used at the same time. Selecting graphic while digital title is selected causes digital title to be erased from memory.



### Frame your image and press DIGITAL MEMO button.

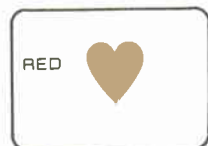
- Everything within the frame will be memorized.
- You can adjust image density (see p.57).

### 2 SELECT—ON/OFF— GRAPHIC



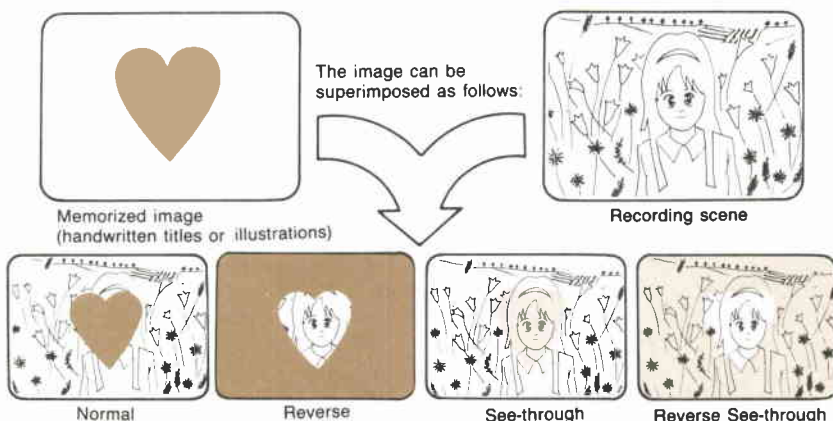
### Press SELECT (graphic) button to select desired colour.

- Choose one of eight colours in either normal mode (colour image) or reverse mode (clear image with colour background).
- Each time the SELECT (graphic) button is pressed, the colour display changes as shown below.



WHT → RED → GRN → BLU → YEL → SKY → VIO → BLK  
 R. BLK ← R. VIO ← R. SKY ← R. YEL ← R. BLU ← R. GRN ← R. RED ← R. WHT ←

- If you press the button for more than three seconds, colour goes into “see-through” mode (the recorded scene is visible through the colour). Viewfinder display appears in brackets.
- Press SELECT (graphic) button for three seconds or more to select normal mode.

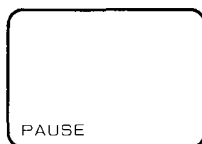


### Notes:

- Character titles can be superimposed over digital titles. If you use the same colour for character titles and digital titles, you may have troubles distinguishing titles.
- For digital titles, your image should be thick and bold, otherwise it will appear faint, especially when using light colours such as yellow or sky blue.

## Recording Titles

1



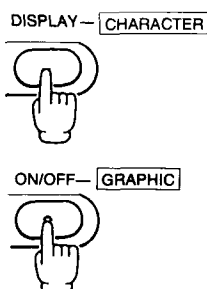
Place camera in record pause mode.

2



Press START/STOP button to start recording.

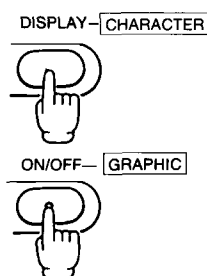
3



Press **DISPLAY** (character title) or **ON/OFF** (graphic) button.

- Press **DISPLAY** (character title) button for character title, and **ON/OFF** (graphic) button for digital title.
- Press **CHARACTER TITLE** button on wireless controller for character title.
- Title appears in viewfinder.
- Title will be recorded with scene.
- Reverse steps 2 and 3 if you want the title to appear right at the beginning of recording.

4

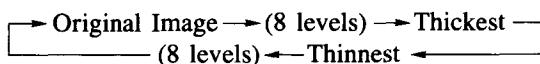


Press **DISPLAY** (character title) or **ON/OFF** (graphic) button again to end title recording.

- Title disappears from viewfinder and recording continues.

## Adjusting Image Density (Digital Title)

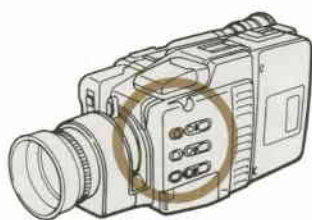
The camera may have difficulty memorizing images with thin lines or weak contrast. In this case, press and hold **DIGITAL MEMO** button for more than three seconds to adjust image density (16 levels). Levels change continuously as follows:



### Notes:

- Because the viewfinder is black and white title changes contrast to the selected colour. If you select the same colour for titles and backgrounds, you may have troubles recognizing titles. Select bright titles for dark backgrounds and dark titles for bright backgrounds.
- Titles cannot be created during recording.
- Titles cannot be created and superimposed in playback mode.
- The lithium battery allows the camera to store titles even when the camera is turned off. When you change or remove the lithium battery (lifetime is about one year), be sure to connect a power source to the camera, otherwise the title will be cleared from memory.
- Colour of titles can be changed during recording.

# Recording Date and Time



You can record the date and time separately or together, and with or without the title.

- For setting date and time, see p.16.
- Colour selection of date and time is the same as that for character title.

1

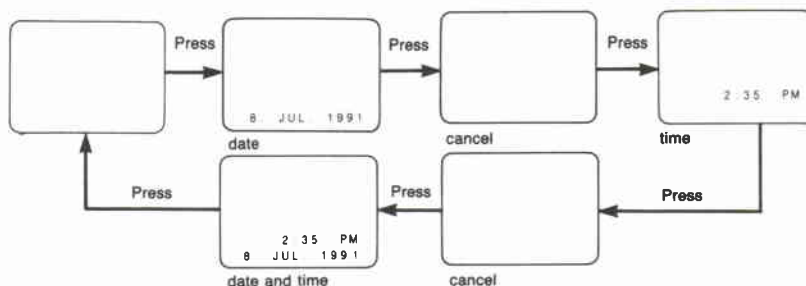


**Place camera in record pause mode.**

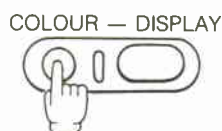
2



**Press DATE button to select display for recording as follows:**



3



**Press COLOUR (character title) button to select desired colour.**

4



**Make your recording as normal.**

- Date and/or time are recorded with scene.

## Notes:

- The date and time cannot be recorded in playback mode.
- When lithium battery is nearly or completely exhausted "DATE" flashes in viewfinder. Change battery (see p.11).
- When replacing the lithium battery, be sure to connect a power source to the camera, otherwise the date and time will be cleared from memory.
- Date and time have the same colour as the title (see p.55).

# STEREO MIC & HEADPHONES Terminals

Optional external microphones (MM-200 Stereo Mixing Microphone, ZM-100 Stereo/Zoom Microphone, see p.64) may be used in place of the regular microphone to achieve special sound recordings.

## Replacing Microphone with External Microphone

1



**Pull out the camera microphone.**

- Make sure the camera is turned off.
- Handle microphone by the base only and not by the foam tip.

2



**Attach external microphone to accessory shoe on camera.**

3



**Insert external microphone plug in camera STEREO MIC and DC OUT terminals.**

- For details, refer to MM-200, ZM-100 instructions.
- When using a commercially available microphone, be sure it is a stereo microphone.

## Connecting Headphones

Connect commercially available stereo headphones to the HEADPHONES terminal to monitor stereo sound.

- Monitoring is only possible when camera is in record or record pause mode.

## Recording Using a Tripod



Use a tripod especially in the following cases:

- Telephoto recording
- Macro recording
- Self-timer recording
- Interval timer recording
- Recording during auto tracking focus
- Recording using wireless controller

### Note:

- Be sure to protect the viewfinder from direct sunlight, otherwise the viewfinder will melt.

# Editing to Another VTR

With the help of a second VTR, your camera can also be used as a playback VTR to edit your recording.

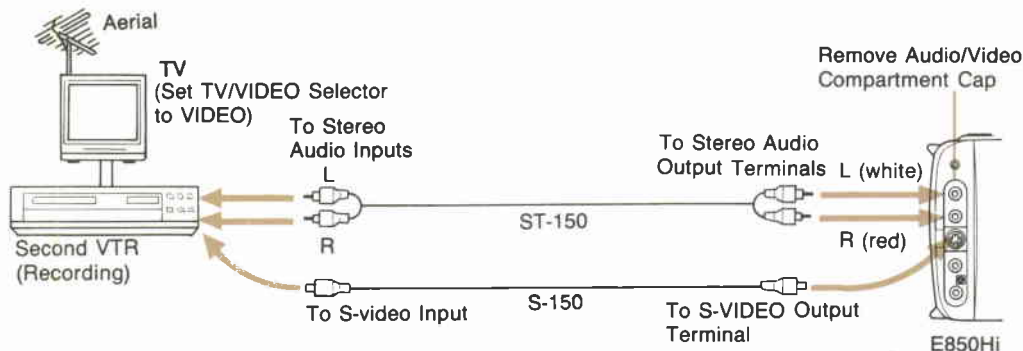
You need the DC-100 DC Coupler, CA-100 Compact Power Adapter (or CB-110 Car Battery Adapter) and optional C-150 AV Cable for connection.

- If the second VTR has a SCART terminal, use the optional PC-270 SST S-stereo SCART Cable for connection.

## Using VTR with S-video input **STEREO**

### Connection Procedure

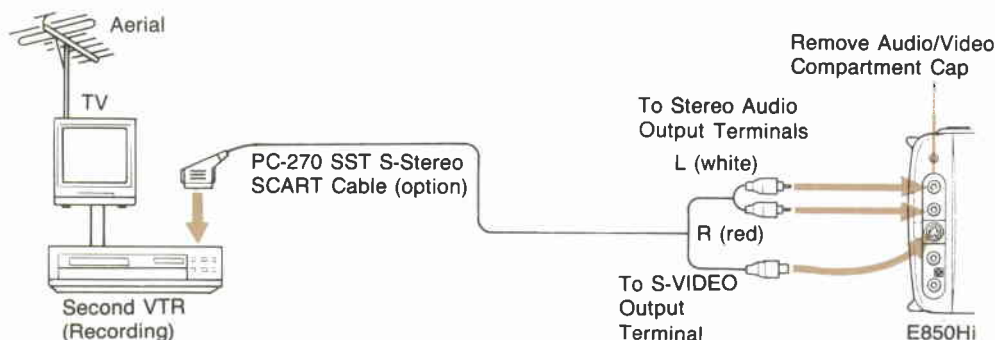
- See page 24.
- For a VTR with audio/video inputs, see the connection procedure on p.24.



## Using VTR with S-video compatible SCART terminal **STEREO**

### Connection Procedure

- See page 25.



## Preparations

### TV



Turn TV on and set TV to video channel or set TV/VIDEO selector to VIDEO.

### VTR



Turn on second VTR and load a recordable video cassette. See VTR instruction manual for details.

### Camera



Turn camera on and load video cassette for playback. Press STOP button. Set EDIT button to ON.

- EDIT button will not operate if you haven't pressed STOP button.

## Editing Procedure

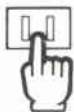
1



**Locate a point slightly ahead of editing start point on video cassette in camera.**

- EDIT button is functioned only in stop mode.

2



**Place second VTR in record pause mode.**

3



**Press camera PLAY button.**

- Check playback picture on TV screen.

4



**Release second VTR from record pause mode at editing start point.**

- Recording begins on second VTR.

5



**Press STOP buttons on camera and second VTR to end editing.**

## Remote Terminal

This terminal is provided to connect this camera to the optional VE-100 Video Editor or video camera recorders/decks which have REMOTE (Control L) terminal. The operation buttons of other manufacturers' equipment may differ from those on this camera. Refer to the other product's instruction manual for details.

## EDIT Button



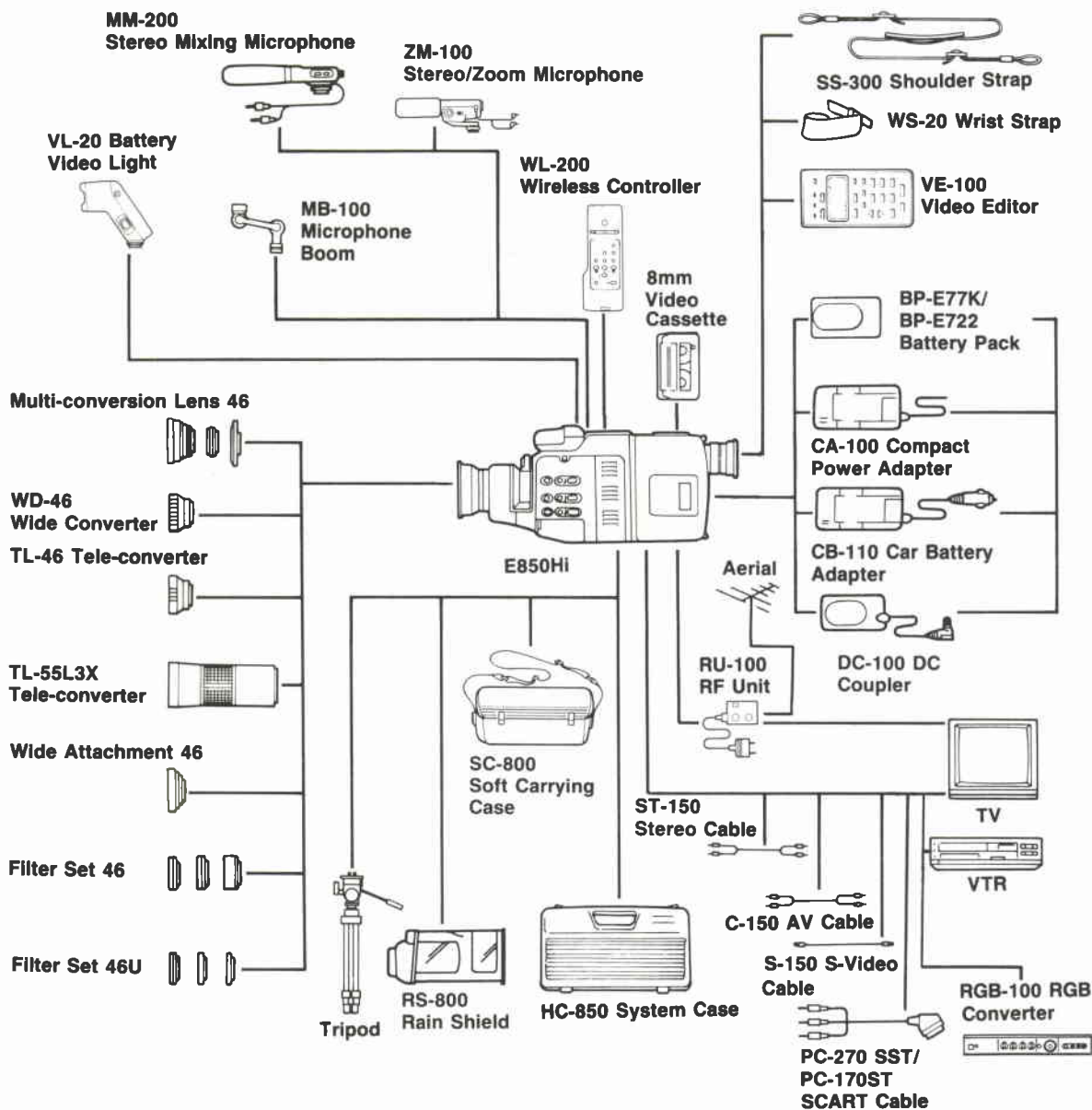
To minimize loss of picture quality, press EDIT button only when camera is used as playback VTR during editing.

- "EDIT" should not be displayed normally.

### Note:

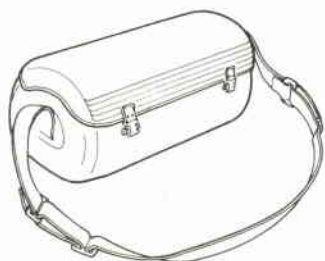
- Both image and sound quality of edited tape will be somewhat less than that of the original.

# Canovision E850Hi Video System Chart



## SC-800 Soft Carrying Case

The optional SC-800 Soft Carrying Case provides lightweight protection for the camera and accessories.



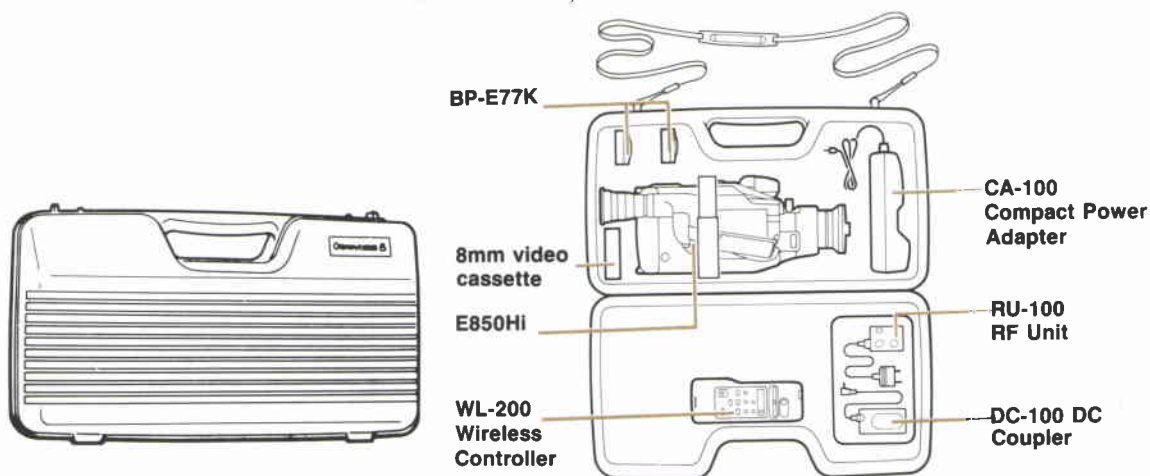


# HC-850 System Case

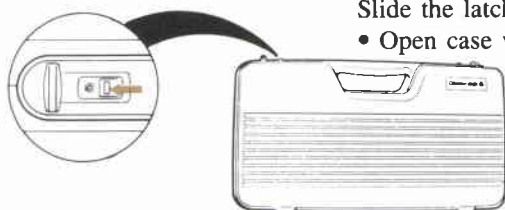
The optional HC-850 System Case safely stores and helps protect the camera and its accessories during transportation and storage.

## The HC-850 properly stores the following items:

- Camera with video cassette and shoulder strap/wrist strap attached
- Two battery packs
- CA-100 Compact Power Adapter  
(or CB-110 Car Battery Adapter)
- DC-100 DC Coupler
- One additional 8mm video cassette
- Cables
- RU-100 RF Unit
- WL-200 Wireless Controller
- Wide Converter, Tele-converter etc.



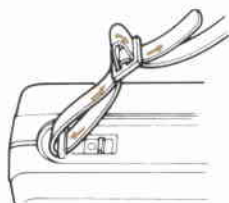
## Opening the Case



Slide the latches on both sides of the case as illustrated to open.

- Open case with "UP" sticker pointing upward.

## Attaching Shoulder Strap



Attach shoulder strap to the strap attachment bars, and adjust it to the most comfortable length.

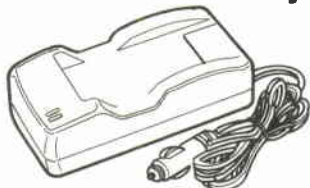
### Notes:

- Do not leave case in areas of extreme heat.
- Do not expose case to strong vibrations or shock.
- Do not place heavy objects on top of case.
- Two keys are provided with the HC-850 System Case.
- Power is slowly drained while the battery pack is attached to the camera, even when the camera is turned off. Remove the battery pack when you don't expect to use the camera.



# Optional Accessories

## CB-110 Car Battery Adapter



For recording using car battery

Plug into cigarette lighter socket. For use only with 12 or 24 V DC negative ground car battery.

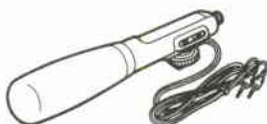
## BP-E722 Battery Pack



Used for lengthy recording, its capacity is double the BP-E77K. Hold the camera with both hands when using this battery.

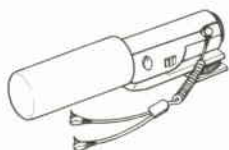
## External Microphone

### MM-200 Stereo Mixing Microphone



This optional mixing microphone lets you record background music and sound effects in stereo from a headphone stereo.

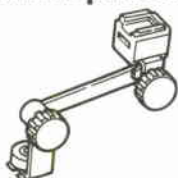
### ZM-100 Stereo/Zoom Microphone



This optional microphone allows you to choose between the stereo and zoom functions.

You can control either the angle or the distance at which sounds are recorded.

### MB-100 Microphone Boom



This optional microphone boom allows you to raise the microphone away from unwanted camera noise when recording at quiet locations.

### RS-800 Rain Shield



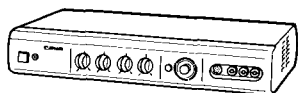
A vinyl cover to protect camera from light rain or mist.

### VL-20 Battery Video Light



This light, compact option uses the BP-E77K or BP-E722 Battery Pack and is ideal for indoor or outdoor shooting.

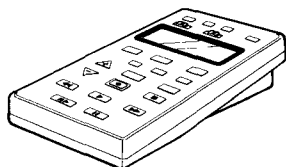
## RGB-100 RGB Converter



This optional converter allows you to convert an S-VIDEO signal into an RGB signal: Now you can enjoy superb Hi8 picture quality on a TV without an S-VIDEO terminal, if it is equipped with a SCART (Peritelevision) terminal that corresponds to an RGB signal.

- Available in Continental European countries and U.K. only.

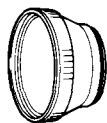
## VE-100 Video Editor



When attached to the remote terminal of the camera and another video camera or VTR, this editor allows editing to be performed easily.

## Lenses and Filters

### TL-46 Tele-converter



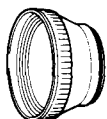
This optional tele-converter is a magnification converter lens that increases the focal length of the camera lens by a factor of 1.4. You can use the camera's zoom function with this lens attached.

### TL-55L3X Tele-converter



This optional tele-converter is a magnification converter lens that increases the focal length of the camera lens by a factor of 3.

### WD-46 Wide Converter



This optional wide converter decreases the focal length by a factor of 0.7. You can use the camera's zoom function with this lens attached.

### Wide Attachment 46



This optional wide attachment decreases the focal length by a factor of approximately 0.7.

### Filter Set 46 and 46U



The optional Filter Set 46 contains three filters: multiple-image filter 5X, R-cross filter 6X and zoom-spot filter.

The optional Filter Set 46U contains three filters: UV, ND8 and circular PL.

### Multi-conversion Lens 46



This optional multi-conversion lens set includes: a wide attachment lens, close-up lens and attachment ring.

Wide Attachment Lens    Close-up Lens    Attachment Ring

# Problems and Trouble Shooting

Use the following checklist for trouble shooting when you have problems with your camera. Consult your local dealer or service outlet if problems persist.

Be sure all connections are properly made when using the camera with other units.

Problem	Cause	Remedy
Camera does not turn on.	Battery pack charge is low.	Replace with fully charged battery pack.
Camera turns off during operation (using battery pack)	Battery pack charge is low.	Replace with fully charged battery pack.
	Record pause mode has lasted for more than seven minutes.	Turn camera on again.
Video cassette compartment does not open.	Battery pack charge is low.	Replace with fully charged battery pack.
	Battery pack is not properly attached to the camera.	Attach battery pack securely to the camera (see p.8)
Camera does not function when an operation button is pressed.	Camera is turned off.	Turn camera on.
	Video cassette is not loaded.	Load a video cassette.
OPERATE/CAUTION indicator flashes, "BATT" flashes in viewfinder.	Battery pack charge is low.	Replace with fully charged battery pack.
OPERATE/CAUTION indicator flashes, "DEW" flashes in viewfinder.	Condensation (Dew) has formed inside unit.	Refer to Condensation (p.68).
OPERATE/CAUTION indicator flashes, "EJECT" flashes in viewfinder.	Safety mechanism is activated.	Unload and reload video cassette.
"DATE" flashes in viewfinder.	Lithium battery not in place properly or charge is low.	Insert new lithium battery (see p.11).
START/STOP button is pressed, but recording does not start.	Camera is turned off.	Turn camera on.
	Video cassette not loaded.	Load a video cassette.
	Tape has ended ("T. END" appears in viewfinder).	Rewind tape or use another video cassette.
	Erase prevention switch on the video cassette is set to prevent recording ("TAPE" flashes in viewfinder)	Use another video cassette or set switch to enable recording (see p.21).
No picture appears in viewfinder.	Camera is in stop mode.	Press REC button.
	Lens cap is attached.	Remove lens cap.

## Note:

This equipment contains a microprocessor. If external noise or interference occurs, random letters may appear in the viewfinder or normal operation may be interrupted. In this case, remove power source (and if necessary, remove the lithium battery) and then replace in the unit again.

Problem	Cause	Remedy
Cannot adjust focus.	Zooming lever is in macro range.	Move zooming lever into normal focusing range.
	Viewfinder diopter not properly adjusted.	Turn diopter adjustment ring until viewfinder display becomes clear (see p.15).
	Autofocus window is obscured.	Remove obstacle from autofocus window.
Playback doesn't start when PLAY button is pressed.	Camera is in record pause mode.	Press STOP button.
	Camera is turned off.	Turn camera on.
	Video cassette not loaded.	Load a video cassette.
	Tape has ended ("T. END" appears in viewfinder)	Rewind tape or use another video cassette.
Tape is moving, but no picture appears on TV monitor.	For TV without audio/video inputs: Video channel not set properly on both TV and RF Unit.	Set TV and RF Unit to appropriate video channel.
	For TV with audio/video inputs: TV/VIDEO selector on TV not set to VIDEO.	Set TV/VIDEO selector to VIDEO.
	Video heads are dirty.	Clean video heads using CC-8 cleaning cassette.
No sound of music.	Camera is not in record pause mode.	Place camera in record pause mode.

## Explanation:

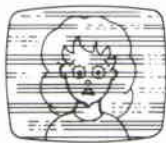


### Smear

A luminous bar appears vertically on the screen where an excessively bright scene was recorded.

Smear is caused when:

- Illuminating search lights are directly recorded.
- Burning candles on a cake are recorded directly.
- Objects reflecting light, such as car bodies and traffic signs, are recorded directly.



### Poor playback picture on TV monitor

Loss in video playback picture quality such as blurring, distortion or noise usually means that the video heads have become dirty. Use the optional Canon 8mm Video Head Cleaning Cassette CC-8 included in the Canon 8mm Video Cleaning Kit CK-E1 to clean video heads. See CC-8 instruction manual for details.

# Condensation (DEW)

## What is condensation?

Condensation or dew means tiny droplets of water that occasionally form on the camera surface when it is moved from a cold place to a warm place. Using the camera when dew is present may damage both tape and camera.

## Preventing condensation

Remove video cassette and place the camera in a plastic bag prior to bringing it into a warm area where condensation is likely to occur. Wait until the camera reaches room temperature before removing it from the bag.

## When condensation is detected



When condensation is detected in the camera, the OPERATE/CAUTION indicator flashes, "DEW" flashes in the viewfinder, and the tape automatically stops. Immediately remove video cassette, leave video cassette compartment open and turn camera off. Leave the camera in a dry place until condensation evaporates.

- Sometimes "DEW" may not appear in the viewfinder until 10-15 minutes after dew has formed.

## To start using camera again

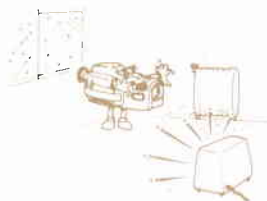
When "DEW" and the OPERATE/CAUTION indicator no longer flash when the camera is turned on, wait at least one more hour before attempting operation. The time required for condensation to clear varies with surrounding conditions; it can be as long as one hour.

### Condensation is likely to occur when:

- Camera is brought from a cold place to a warm place.



- A cold room is heated rapidly.



- Camera is placed in a humid room.



- Camera is taken from an air-conditioned room to a warm and humid place.



# Specifications

## E850Hi

<b>Power supply (rated):</b>	6 V DC
<b>Power consumption:</b>	8.0 W
<b>Television system:</b>	CCIR standard (625 lines, 50 fields) PAL colour signal
<b>Video recording system:</b>	2 rotary heads, helical scanning system Luminance signal: FM azimuth recording Colour signal: Converted subcarrier phase shift recording (8 mm video standard)
<b>Audio recording system:</b>	Frequency multiplexing with the video signal by 2 rotary heads (2 channels)
<b>Image sensor:</b>	1/2-inch CCD (Charge Coupled Device)
<b>Tape format:</b>	8 mm, metal evaporated/metal particle
<b>Tape speed:</b>	20.051 mm/s (SP) 10.026 mm/s (LP)
<b>Maximum recording time:</b>	3 hours with P5-90 video cassette in LP mode
<b>Lens:</b>	f/1.4, 8X power zoom, 8.5—68 mm focal length, macro (wide/tele)
<b>Focusing system:</b>	TTL autofocus, manual focusing possible
<b>Minimum focusing distance:</b>	0.6 m with AF macro, or 4 mm in wide macro
<b>Minimum illumination:</b>	5 lux
<b>Filter diameter:</b>	46 mm
<b>Electronic viewfinder:</b>	0.7-inch monochrome CRT
<b>Microphone:</b>	Stereo electret condenser microphone
<b>Input level:</b>	Audio: -64 dBV/600 ohms unbalanced (external mic)
<b>Output level:</b>	Video: 1 Vp-p/75 ohms, unbalanced (video output terminal), 1 Vp-p (Y signal)/0.3 Vp-p (C signal) (S-video output); Audio: -10 dBV/less than 3 kohms, unbalanced (audio output terminal/stereo audio outputs)
<b>Dimensions:</b>	124 × 311 × 123 mm
<b>(Width × Depth × Height)</b>	
<b>Weight:</b>	1.25 kg without battery pack

## RF Unit RU-100

### European model

Power source:	5 V DC
Power consumption:	40 mA (max.)
RF output:	30 — 39 selectable
Dimensions (W × D × H):	75 × 30.4 × 51 mm
Weight:	200 g

### Australian model

Power source:	5 V DC
Power consumption:	35 mA (max.)
RF output:	0CH/1CH selectable
Dimensions (W × D × H):	75 × 34.5 × 51 mm
Weight:	150 g

Weight and dimensions are approximate.  
Errors and omissions excepted.  
Subject to change without notice.

# Canon

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